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A Snapshot of the New and Developing Medical Schools in the U.S. and Canada

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TABLE OF CONTENTS

APPENDICES

INTRODUCTION

This document is the beginning of an exciting and important story in the history of medical education. In July 2009, the Josiah Macy Jr. Foundation awarded the Association of American Medical Colleges a grant to support a four-year study titled, "Learning from the Experience of a Consortium of New and Developing Medical Schools." The aim of this study is to enhance our collective understanding of the challenges, opportunities, and experiences of the new medical schools being created at the beginning of the 21st century.

Today's level of growth of new medical schools has not been seen since the late 1960s and early 1970s. There were no new medical schools accredited in the United States from 1986 until Florida State was fully accredited in 2005. During that time, in fact, one medical school closed and two of the Philadelphia medical schools merged, reducing the number from 126 to 124. As of October 2012, the number has now increased to 141.

The goals of the project are to: 1) support the new schools and provide a venue for them to share their work and innovations; 2) to maintain a record of the history and development of these new schools; 3) to learn from their experiences and produce a written record to promote sharing of the lessons learned and catalyze in existing medical schools the development and implementation of innovative curricula and approaches to medical education; and 4) to disseminate widely the results of the development, implementation, and evaluation of these new educational programs. The grant was originally written to support 10 new medical schools, but now supports 16 of the new and developing medical schools.

The key questions the study explores include:

1. What unique opportunities are present for a new school versus an established school?

2. Given the many calls for medical education reform, what are the various methods being utilized to deliver a four-year curriculum?

3. Are there new models for clinical education?

4. Does an integrated approach of basic and clinical sciences improve medical decision making and/or retention of basic science knowledge?

5. What are the best curricular methods to promote lifelong learning, professionalism, patient centeredness, and to decrease medical student and faculty burnout?

The schools involved in this project have devoted significant time to the collection of information, as evidenced by this document. In addition, the project has engaged an anthropologist with experience in medical education to conduct an ethnographic study of several of the schools. Ethnographic interviewing and observation are being employed during selective visits to new and developing medical schools at different stages in the LCME accreditation process. Data from these visits will be subjected to qualitative analysis in an attempt to answer the *how* and the *why* of medical school program development and decision making, not just the *what, where,* and *when.* Field investigations will seek to uncover patterned data that point to dynamics less susceptible to measurement but which may be influential and powerful forces in the way that new medical schools come into being. Useful data would ideally point investigators to the answers to questions such as the following:

- Are there identifiable factors (in addition to the obvious such as funding, facilities, personnel, etc.) that contribute to a new medical school's success or failure?

- Is there a way to measure whether these new schools will graduate a different kind of physician?

- What are the essential elements of the institutional culture of a successful new school?

- Is it possible to "engineer" a new culture of medical practice?
- Can these schools be truly part of the social mission and contribute to their respective communities? If so, how?

Guided by focused questions such as these, data analysis will be iterative and ongoing, employing both a priori and inductive (grounded theory) coding and, as more schools are included in the study, enumerative analysis. The ethnographic focus on language and meanings will allow for an exploratory (i.e., hypothesis-generating) approach to the data set, which may then be employed in seeking empirical support for such research hypotheses. The information collected through the ethnographic study will be combined with the information presented in this document to provide a robust picture of the experiences of the new and developing schools.

THE NEW AND DEVELOPING SCHOOLS CONSORTIUM

As an initial effort under the Macy grant, a group of new medical schools in various stages along the Liaison Committee for Medical Education (LCME) accreditation timeline, from applicant school through full accreditation, met for the first time during the AAMC annual meeting in November 2009. This group became the Consortium of New and Developing Medical Schools and reached a final size of 16 medical schools. The consortium has continued to meet twice a year since that time, with frequent communication between meetings. One of the benefits of the consortium that the school representatives often mention has been the advice and encouragement that members of the group have received from their colleagues along the journey from idea to implementation. The schools continue to remark on the spirit of adventure and the collaborative environment within their institutions that moves them forward on their journey. The time available to create the document was short, but every school responded. If there is one thing that is true about all of the new schools' experiences it is that they are incredibly busy developing new medical schools, new educational programs, recruiting faculty, responding to accreditation requirements, raising funds, recruiting students, preparing for new students, and ultimately opening a new medical school. The willingness of the school representatives to author the reports in this document is commendable and illustrates the spirit of cooperation and sharing that is a hallmark of the consortium schools.

There have been a few new schools that have applied for LCME accreditation since the consortium was formed. The grant funds were not sufficient to include additional schools but, perhaps more importantly, the schools in the consortium had bonded and there was concern that bringing additional new schools into the group almost three years into the study would be disruptive and nonproductive.

While the purpose of the project is to learn as much as possible about the new schools, the accreditation process has been an overriding concern and focus of conversation within the consortium. The LCME secretaries have been generous with their time and have met with the group at least once a year to respond to questions and discuss changes in the LCME accreditation process.

THE SNAPSHOTS

In order to prepare for this update, the consortium medical schools received two templates: one of qualitative questions and one of quantitative questions. The responses to the qualitative questions form the bulk of the document. The responses to the quantitative questions are presented in the table. While each school representative responded to the templates, there was room for them to present information they thought was important to highlight about their programs. Overall, the same types of information about each medical school are presented, which was the goal. The reports are called "snapshots" because, like camera snapshots, they reveal considerable information about each school at a particular point of time, even though there is much more to the picture of each of the new schools.

The questions posed to the schools were designed to capture as much information as possible about the opportunities, the challenges, and the unanticipated outcomes the schools have encountered as they have worked to establish new medical education programs. The reports are organized by the categories presented in the template the authors used. The authors have been frank about what has worked particularly well, but also what has worked less well.

The adage "if you have seen one medical school, you have seen one medical school" holds true for the new schools just as it does for established schools, but there are a few common themes worth mentioning. The support of the communities in which these new schools are being established is cited in the reports as a key element of success while the challenge of gaining the understanding of the university board of trustees about the goals of a medical school presents a common frustration for the new schools. Many of the schools write about the benefit of having faculty from partner institutions and hospitals being willing to take part in the adventure of a new medical school and explore the question of "how many faculty are enough?" The schools generally have an early clinical exposure for their students, and some are trained as EMTs before they begin formal class work.

The culture that each school is creating is evident in these reports and is an important component of the study. Are these schools developing a new kind of medical education culture? Will this result in a new kind of physician? Does it result in a different kind of faculty member? At least two of the schools represent a new model of a partnership between an existing hospital or clinic and the new medical school. What opportunities does this partnership present?

The majority of the schools have developed competencies and/or objectives that align with the ACGME competencies. We collected all of them and present them as appendices in this publication. (appendices A through K) as a source of comparison.

On a personal note, as the staff for this grant, we would like to thank the faculty and staff from the 16 participating medical schools for their ongoing involvement in this important project and the Josiah Macy Jr. Foundation for its support of this work. We would also like to acknowledge the ongoing contributions of Hope Gray from the AAMC staff and of Dr. Warren Anderson, our consulting ethnographer.

These reports are the beginning of a story that needs to be continued. They are a testament to incredibly hard work, perseverance, courage, and the dreams of leaders in medical education, and of students and faculty willing to take a chance. We are all anxious to shape a new vision of the future of medical education.

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Senior Director, Medical Education Projects
Association of American Medical Colleges

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Project Consultant
Senior Academic Officer, International Programs
National Board of Medical Examiners

October 2012

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

SCHOOL TABLES

MEDICAL SCHOOL	Public/Private/ Partnership	University or Free standing	Yr of First Discussions	Yr of initial LCME application	Candidate Status	Preliminary accreditation	Provisional accreditation
CALIFORNIA							
UC-Riverside	Public	University	2003	2010	2012	2012	pending
CONNECTICUT							
Frank Netter - Quinnipiac	Private	University	2008	2010	2012	2012	pending
FLORIDA							
UCF	Public	University	2004	2007	2007	2008	2011
FSU	Public	University	1997	2000	na	na	2002
Schmidt FAU	Public	University	1998	2010	2010	2011	pending
FIU Wertheim	Public	University	2000	2007	2007	2008	2011
MICHIGAN							
Central Michigan	Private	University	2006	2009	2011	2012	pending
Western Michigan	Private	Freestanding	2007	2010	2012	2012	pending
Oakland-Beaumont	Private	University	1970s	2007	2009	2010	pending
NEW JERSEY							
Cooper-Rowan	Public	University	2007	2009	2011	2011	pending
NEW YORK							
Hofstra North Shore - LIJ	Private	University	2007	2008	2010	2010	pedning
ONTARIO							
Northern Ontario	Public	University	1990s	2004	na	na	2004
PENNSYLVANIA							
Commonwealth	Private	Freestanding	2004	2006	2008	2008	2012
SOUTH CAROLINA							
USCSOM Greenville	Public	University	2009	2010	2011	2011	pending
TEXAS							
Texas Tech Paul L. Foster	Public	University	1999	2006	2007	2008	2011
VIRGINIA							
Virginia Tech Carilion	Private	Freestanding	2006	2008	2009	2009	2012

Full LCME accreditation	Founding Dean appointed	Founding Dean on campus	First class matriculated	Size of first class	Size of second class	Size of third class	Size of 2012 entering class
CALIFORNIA							
pending	2009	2010	2013	50 (proposed)	50 (proposed)	50 (proposed)	NA
CONNECTICUT							
pending	2010	2010	2013	60 (proposed)	90 (proposed)	125 (proposed)	NA
FLORIDA							
pending	2006	2006	2009	41	60	80	100
2005	2001	2001	2001	30	40	46	120
pending	2010	2004 (regional)	2011	43	63	82 (proposed)	63
pending	2006	2007	2009	43	42	82	120
MICHIGAN							
pending	2010	2010	2013	60	100	100	NA
pending	2011	2011	2014	48 (proposed)	56(proposed)	64(proposed)	NA
pending	2008	2008	2011	50	75	100 (proposed)	75
NEW JERSEY							
pending	2010	2010	2012	50	60(proposed)	70(proposed)	50
NEW YORK							
pending	2008	2008	2011	40	60	80(planned)	?
ONTARIO							
2009	2002	2002	2005	56	56	56	64
PENNSYLVANIA							
pending	2007	2007	2009	65	65	65	70
SOUTH CAROLINA							
pending	2011	2011	2012	53	50(proposed)	75(proposed)	53
TEXAS							
pending	2007	2007	2009	40	60	80	80
VIRGINIA							
pending	2008	2008	2010	42	42	42	42

University of California-Riverside School of Medicine
Riverside, California

Paul Lyons, M.D.
Senior Associate Dean for Education

MISSION AND VISION OF THE NEW SCHOOL

The mission of the University of California Riverside School of Medicine (UCR SOM) is to improve the health of the people of California and, especially, to serve Inland Southern California by training a diverse workforce of physicians and by developing innovative research and healthcare delivery programs that will improve the health of the medically underserved in the region and become models to be emulated throughout the state and nation.

- The mission statement was developed during the planning phase for the medical school and has informed the development of the school, the recruitment of key leadership and the initial practice plan development.

- The stated mission has not changed since inception although the operational implications are evolving (clinical partnerships, faculty recruitment and development, educational program objective development, financial/business models, etc.).

RELATIONSHIP TO THE PARENT UNIVERSITY

- UCR SOM functions as a school within the UCR structure accredited as a degree granting school through the Western Association of Schools and Colleges (WASC).

- UCR Faculty and the Chancellor are both supportive of the development of the SOM, which is one of the major planks of the strategic 10-year plan for UCR.

- UCR SOM also functions as part of the broader UC system that includes five other medical schools.

- The Office of the President has offered administrative and financial support for the medical school and has assisted in addressing the state legislature as it considers augmented state funding for this state university program.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The medical school curriculum is an integrated structure for the two-year pre-clerkship biennium and organized around clerkships for the third and fourth years.

- Each block has one or more block directors responsible for oversight and management of the block.

- Three longitudinal integrated skills courses span the first two years, Doctoring, Problem-based Learning, and Clinical Skills.

- Each of these courses has a designated director.

- There are also identified "threads," content areas that span individual blocks (e.g., pharmacology, behavioral science). Each of these threads has a Thread Coordinator.

- Each clerkship will have a designated clerkship director as well as site directors/coordinators for each clinical location.

- The educational curriculum is managed through the Office of Medical Education (OME).

- The OME is under the direction of the senior associate dean for education, who is the LCME designated Chief Academic Officer.

- Within the UC shared governance system all elements of the curriculum are under the direction of the faculty. As such, all elements of the curriculum are reviewed and approved by the faculty.

- The Faculty Executive Committee (FEC) is a faculty-elected committee with oversight and final authority for all faculty governed activities including curriculum.

- The Medical Education Committee [MEC] (and its two subcommittees, Pre-clerkship and Clerkship) is a standing committee of appointed faculty members who represent major elements of the curriculum (e.g., course, block and clerkship directors). This committee has responsibility for review and oversight of the curriculum and makes recommendations to the FEC for final approval.

- Governance for all curricular issues in the UC system is provided by faculty. Within the UCR SOM all curriculum must be reviewed and approved by the faculty.

- The faculty mechanism for providing oversight/governance is the MEC and the FEC.

- The MEC comprises core faculty members as well as selected volunteer clinical faculty members.

- Each course, block and clerkship director is a member. Senior administrative support personnel are also included in the committee although not as voting members.

- All elements of the curriculum must be presented to the MEC including new elements, significant revisions of existing elements and any elements proposed for removal.

- Educational competencies, educational program objectives, and course/block/clerkship objectives are all subject to review.

- The FEC, composed of basic science and clinical faculty who hold voting rights in the academic senate, holds final authority for the curriculum.

- The senior associate dean for Education is the designated chief academic officer and holds responsibility for working with the MEC/FEC to ensure that the curriculum meets all standards for LCME accreditation and serves to effectively address the school's mission.

SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- The senior associate dean for education will be responsible for establishing an Office of Education.

- Initial development is anticipated to begin summer 2012.

FINANCIAL MANAGEMENT

- Currently there is not a separately identified education budget.

LEARNING OUTCOMES

- Learning outcomes have been identified for each course, block and thread of the first two years.

- Learning outcomes are under development for the clerkships.

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Medical Schools in the United States and Canada

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STUDENT ASSESSMENT

- There are multiple assessment models in place or planned for the curriculum that include nationally normed written examinations, internally developed written examinations, OSCE-style clinical evaluations, written and verbal formative and summative feedback, and end-of-year cumulative written and clinical evaluations.
- Clinical Education
- Students will have three clinical courses that are integrated into the first two years: Clinical Skills, Problem-based Learning, and Doctoring. These are small-group clinical courses that are integrated with and reflective of the basic science material of the blocks.
- In the second year students will begin a Longitudinal Ambulatory Care Experience (LACE) that will serve as a continuity clinical experience, an integrative bridge between the preclerkship and clerkship experiences and an opportunity to develop Population and Community Health and Scholarship competencies.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- A small number, but highly involved, faculty with a strong personal connection to the students.
- Early introduction to clinical continuity.
- Focus on ambulatory, primary care with an emphasis on Community and Population Health.

FACULTY

- The UCR SOM is currently conducting a national search to recruit up to five basic science faculty to augment the 14 currently in place and teaching in the 2+2 program with UCLA.
- The school is also recruiting both nationally and regionally for a variety of clinical positions including a permanent chair in family medicine, and program directors and clerkship directors in internal medicine, family medicine, pediatrics, OB/GYN, medicine/pediatrics, and general surgery.
- Clinical teaching faculty – both compensated and clinical – are also being recruited, primarily from the Inland Southern California region.
- Uncertainties about being part of a new medical school add an additional challenge to recruiting faculty.
- The community focus of the program places a very high emphasis on faculty diversity, which in turn highlights the intrinsic challenges of recruiting a diverse faculty that reflects the community.

VALUING TEACHING

- Teaching is one of three fundamental areas for merit and promotion within the university.
- Teaching is included explicitly in every appointment letter and is key to advancement.

FACULTY DEVELOPMENT INITIATIVES

- The current UCR/UCLA Thomas Haider Program in Biomedical Sciences utilizes the UCLA Center for Educational Development and Research to provide medical school faculty members with courses and workshops designed to improve their skills as teachers and evaluators of medical students.
- Faculty development programs include workshops on effective problem-based learning, case discussions, doctoring facilitation, lecturing and effective teaching in a clinical situation.

- The relationship will continue until the UCR medical school establishes an office of medical education under the leadership of the senior associate dean for education.
- The office of medical education will be directed by a medical educator, currently being recruited, who has skills in faculty development programs, assessment and curricular management. The goal is to recruit a director of medical education for this position by winter 2012 or spring 2013.
- In addition to faculty development workshops and seminars on such topics as teaching techniques, small-group problem-based learning facilitation and student assessment, the office will also encompass educational research and curricular evaluation.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The existing faculty and educational program have been invaluable as we develop an independently accredited four-year medical school.
- The leadership team works well together, has a shared vision and an open communication style.
- The community support for the medical school is both deep and broad which has been critical as barriers have arisen.

WHAT HAS WORKED LESS WELL

- The integration of key medical school administrative functions into a system that has limited experience with these functions, e.g., hiring/credentialing of physicians, establishing clinical practices.
- The challenge of addressing balancing LCME accreditation tasks with the multiple other tasks necessary to establish a new medical school. This is made more challenging with a small faculty complement.

MOST PROUD OF TO DATE

- The unique mission and educational model of the school and the integration of that mission/model into all aspects of its development.
- The track record of attracting key faculty members with a strong commitment to the vision and mission of the school.
- The ability of our faculty to continue to deliver the UCR/UCLA curriculum while simultaneously focusing on development of the UCR School of Medicine curriculum.
- The focus, dedication and flexibility of faculty and staff during a period of considerable institutional stress.

Frank H. Netter, M.D., School of Medicine at Quinnipiac University
North Haven, Connecticut

Bruce M. Koeppen, M.D., Ph.D.
Founding Dean

Anthony Ardolino, M.D.
Senior Associate Dean for Academic Affairs

MISSION AND VISION OF THE NEW SCHOOL

VISION

The Frank H. Netter, M.D., School of Medicine will be a model for educating diverse, patient-centered physicians who are partners and leaders in an interprofessional primary care workforce responsive to healthcare needs in the communities they serve.

MISSION

The Frank H. Netter, M.D., School of Medicine enables medical students to attain their highest personal and professional potential in a collaborative environment that fosters academic excellence, scholarship, lifelong learning, respect, and inclusivity.

VALUES

The Frank H. Netter, M.D., School of Medicine embodies the Quinnipiac University's commitment to its core values of excellence, student-oriented education, and a strong sense of community.

Accordingly, the school of medicine values:

- Diversity and inclusiveness in all students, faculty, and staff
- Excellence in education that places the student at the center of the learning experience and nurtures the student's independence as a lifelong learner
- A learning environment that promotes the provision of holistic, patient-centered primary care
- Interprofessional education and service-learning experiences to promote teamwork in the care of patients
- Clinical partners who support and promote the school's vision, mission, and values
- Social justice and the education of physicians to address healthcare inequities
- Partnerships within our community that provide students with learning and service opportunities in order to improve the health of the community
- Advancement of global health by promoting primary care, patient education, community medicine, public health, and international partnerships

RELATIONSHIP TO PARENT UNIVERSITY

- The School of Medicine is one of three health-related schools at Quinnipiac University. The others are the School of Health Sciences and the School of Nursing.
- Between these schools, the following degree programs are offered:

  School of Nursing:
  - Bachelor of Science in Nursing (BSN)
  - Masters of Science in Nursing (MSN)
  - Doctor of Nursing Practice (DNP)

  School of Health Sciences:
  - Bachelor of Science
  - Athletic Training
  - Biomedical Sciences
  - Diagnostic Imaging
  - Health and Health Sciences
  - Microbiology/Molecular biology
  - Premedical Studies

  Master of Sciences:
  - Biomedical Sciences
  - Cardiovascular Perfusion
  - Medical Laboratory Sciences
  - Pathologists' Assistant
  - Physician Assistant
  - Radiologist Assistant
  - Occupational Therapy

  Doctoral:
  - Physical Therapy (DPT)
  - School of Medicine
  - M.D.

- Because of the rich environment at Quinnipiac, the three schools are committed to developing an interprofessional model for training of the future healthcare workforce, with an emphasis on primary care and global public health.
- With regard to global public health, Quinnipiac University is the home of the Albert Schweitzer Institute that serves to coordinate global health programs across the university.

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

Key:
Solid line – Direct reporting/supervision
Dotted line – Advisory

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Dean
School of Medicine
        |
Senior Associate Dean
for Academic Affairs
        |
Council on                    Promotions and
Curriculum Oversight ········ Performance Standards
        |
  ┌─────────────┬──────────────┬──────────────┐
Courses and   Foundations of  Clinical Courses  Scholarly Reflection and
Curriculum    Medicine Course Committee         Concentration/Capstone
Evaluation    Committee        (Clinicals Arts and Course Committee
Committee     (FOM Courses and Sciences, Y3-4 Clerkships
              Basic Science Renewal) Y4 Electives
                    |              |              |
              Foundations of  Clinical Courses  Scholarly Reflection and
              Medicine Grading Grading Subcommittee Concetration/Capstone
              Subcommittee                     Grading Subcommittee
```

- The Council on Curriculum Oversight has oversight of the development, implementation, and review of the curriculum, based on the medical education mission of the school of medicine.
- The specific duties of the Council On Curriculum Oversight, as documented in the school of medicine Bylaws and Student Academic Policies (found in Appendix ED-33), include creation of new courses, elimination of courses, assigning hours to courses, academic policy development, curricular innovation, and acting on recommendations from subcommittees.
- The Council has the authority and responsibility to mandate changes in course and/or section content and procedures. The committee shall meet at least monthly and provide the dean with appropriate updates, reports, and evaluations.
- The Council works closely with the Promotions and Performance Standards committee to assure uniformity of policies and assessment methods.

    Four committees report to the Council on Curriculum Oversight:

    – Course and Curriculum Evaluation Committee
    – Scholarly Reflection and Concentration Capstone Course Committee
    – Clinical Courses Committee
    – Foundations of Medicine Course Committee

- The senior associate dean for academic affairs chairs the Council on Curriculum Oversight, with the associate dean for assessment and faculty development as vice chair. Both of these positions reflect permanent selections by nature of their academic appointments.
- Other permanent members include the senior associate dean for clinical and external affairs and the senior associate dean for scholarship; the dean is a permanent ex officio member.

- Three course directors (Foundations of Medicine, Scholarly Reflection and Concentration/Capstone, and Clinical Arts and Sciences), all appointed by the senior associate dean for academic affairs, are also permanent members.
- Four basic science and four clinical faculty members serve for three-year terms, and are appointed by their respective department chairs. (At startup, these positions will terminate in a staggered fashion to ensure that experienced faculty members always sit on the committee. Therefore, the initial terms will be three, four, and five years.)
- In keeping with the mission to create an interprofessional educational program, one member of the school of health sciences and one member of the school of nursing have permanent seats. These faculty members serve three-year terms, are appointed by their respective deans.

SUPPORT FOR THE EDUCATIONAL PROGRAMS

OFFICE OF EDUCATION

- The Office of the Senior Associate Dean for Academic Affairs serves as the school's Office of Education.

FINANCIAL SUPPORT

- The entire educational program is funded out of the Dean's Office, including salaries for faculty. (Note: there is no expectation for salary support on grants, or generation of clinical income.)
- Revenue to support the educational program is derived from tuition, subsidy from the university, and the school's endowment.

LEARNING OUTCOMES (APPENDIX A)

STUDENT ASSESSMENT

- The school uses both formative and summative assessment methodologies. Exams are generated in house, and the customized exam services of the NBME are also used.
- Students are also assessed through the use of standardized patients in our Clinical Skills Assessment Center.
- Students are expected to self-assess as part of the Scholarly Reflection and Concentration/Capstone course.
- The school uses a pass/fail grading system, with the ability to earn an honors distinction in the core clinical disciplines.

CLINICAL EDUCATION

- Beginning in Year 1 and continuing for three years the students see patients one half-day each week in the office of a primary care physician. This experience is termed the Medical Student Home (MeSH).
- Integrated Clinical Clerkships are being developed for Year 3 and there will be required clinical experiences in Year 4.

YEAR 3

YEAR 4

	Weeks	Clinical Rotation
Require Clinical	4	Emergency Medicine
	4	Intensive Care Medicine
	4	Hospital Subinternship
Capstone Project	8	In Area of Concentration
Electives	16	Elective 1-4
Vacation	8	Two four weeks blocks
Total Year 4	44	

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- The curriculum in Years 1 and 2 is organized using a form of case presentation methodology that we have named QUEST (Quinnipiac University Educational Strategies Template), which anchors each week of the academic calendar.
- In general, each Monday morning at 8 o'clock, one or two medical topics are presented as clinical cases, and students are provided with a set of independent learning activities to complete over the next several days.
- All three concurrent courses – Foundations of Medicine, clinical arts and sciences, and Scholarly Reflection and Concentration/Capstone – expose students to comprehensive, integrated basic and clinical sciences information relevant to the clinical case topics for each week.
- From Monday through Thursday each week, students learn core material in an integrated and contextual fashion.
- On each Friday morning, students meet in small-group seminars with a pair of basic science and clinician preceptors to discuss their independent learning assignments and to solidify the course material presented during the week. Friday mornings typically end with a whole-class review, led by block faculty members, designed to reinforce and summarize key concepts.
- Students are provided with, and strongly advised to take, bi-weekly, optional formative multiple-choice examinations that cover content presented both during that week and from earlier parts of the curriculum, thus allowing students to self-assess their current and summative knowledge.

- The University's Center for Interprofessional Health Care Education is coordinating the development of activities and learning experiences to promote in students an understanding of the roles and responsibilities of the various members of the healthcare team.
- A unique aspect of the curriculum is the Scholarly Reflection and Concentration/Capstone course. The Scholarly Reflection and Concentration and Capstone course, a required curricular element for all students, offers medical students the opportunity to participate is scholarly projects with faculty from schools across the Quinnipiac University (i.e., schools of Business, College of Arts and Sciences, Communication, Education, Health Sciences, Law, and Nursing.
- This course offers students a self-directed curriculum to gain expertise in an area of interest, perform independent scientific inquiry guided by a self-selected mentor, and engage in self-reflection and professional development through close reading of narrative pieces and narrative composition.
- In the pre-clinical years, students learn the tools of research methodology and scientific inquiry through formal course work and gain expertise in an area of concentration by taking an elective course each semester starting in the spring of Year 1 (three total).
- A narrative medicine curricular theme engages students in how to organize and communicate information as well as self-care and professional development.
- Students initiate the capstone scholarly project in the spring of Year 1 and continue the project, under the direction of a capstone mentor, throughout the remainder of the pre-clinical and clinical curriculum with eight weeks dedicated in Year 4 to complete the project. This culminates in a poster or oral presentation at an interdisciplinary Student Research Day prior to graduation.
- The capstone scholarly projects will be broad in scope given the breadth of our concentration areas. The Concentration and Capstone Longitudinal Theme is a personalized curriculum designed by students to enhance their educational experience in an area of interest. This theme integrates the longitudinal themes of mentoring and epidemiology, medical informatics, and biostatistics into a summative experience resulting in the production of a rigorous scholarly project presented during a fourth-year Student Research Day. These projects may be individual or team-based.

Areas of concentration include:*

1. Global, public, and community health
2. Health policy and advocacy
3. Health management and leadership
4. Health communication
5. Medical education
6. Translational, clinical, and basic science research
7. Medical humanities
8. Self designed*

> *	Students may design a unique concentration under special circumstances working with the course director and capstone mentor.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

FACULTY

FACULTY RECRUITMENT

- In March of 2011, the school placed a full-page ad in the New York Times inviting individuals to apply for full-time positions in our Department of Medical Sciences. This was coupled with ads placed in a number of specialty journals, and academic websites. As a result, the school has received more than 760 applicants for 20 full-time basic science positions.

- The quality of the applicants has been truly outstanding.

- Promising candidates undergo a 30- to 60-minute video interview. Based on the results of that interview, and two-day campus visit is then scheduled. Given the importance of the educational mission, each candidate is asked to give a 50-minute lecture they would give to first-year medical students.

- If student schedules allow, the lecture is presented to a class of physician assistant students who evaluate the quality of the lecture.

- To date we have not encountered any recruiting difficulties. The fact that we do not offer tenure has not been an issue.

- All first contracts are for three years, and renewable for three- or five-year terms depending on rank.

VALUING TEACHING

- Because all full-time faculty will spend 70 to 75 percent of their effort related to education. It is that activity that is most valued with regard to performance evaluation and promotion. As stated in the school's bylaws, "Effective teaching is the hallmark of the Professorate."

- Faculty seeking promotion must have a demonstrable record of effective instruction in the classroom and competency in guiding independent student learning.

- All teaching assignments are to be evaluated.

- All promotion recommendations must include as thorough an evaluation of teaching effectiveness as can be assembled.

- Included in the promotion packet are peer evaluations, medical student teaching evaluations, and the candidate's self-evaluation.

- Evidence of continued reflection, as well as improvements based upon teaching evaluations and faculty development initiatives are expected.

The following excerpt is from the annual faculty assessment form:

TEACHING

Teaching is defined for the purpose of this performance review process as those activities related to lectures, laboratories, small-group activities, virtual learning environment, individual instruction, and clinical setting (in-patient, ambulatory), and mentorship. Measures of performance must be in the context of the setting(s) in which the faculty member provides instruction and/or mentoring.

Satisfactory Performance in Direct Teaching

Each of the following criteria in direct teaching and mentorship must be achieved to receive a ranking of satisfactory.

- Establishes and utilizes clear learning objectives

- Material covered in presentations is current and appropriately detailed

- Material is integrated with other relevant content and taught in a logical sequence in the curriculum

- Presents content in a clear, concise manner

- Facilitates critical thinking and learning of key concepts

- Uses effective teaching methods

- Facilitates student participation, inquiry, and independent learning

- Stimulates improvement in applied clinical skills

- Encourages expression of reasoning and critical evaluation of ideas

- Provides constructive feedback to learners

- Fosters a respectful learning environment

- Demonstrates effective collaboration and collegiality

- Acceptable teaching performance assessment by peers and students

- Consistently prepared and punctual in meeting instructional obligations (submission of examination questions, images, and other course materials)

- Provides organized and relevant instructional materials

Satisfactory Performance in Mentorship

- Accessible and available to mentees

- Assists mentees to identify gaps in knowledge and skills

- Aids mentees in identifying behaviors to help them achieve promotion

- Works with mentee to identify career goals and facilitates career planning

- Serves as a positive role model

- Provides constructive advice and feedback

Needs Improvement

Faculty member is deficient in no more than one of the parameters defining satisfactory performance.

Unsatisfactory Performance

Faculty member is deficient in two or more of the parameters defining satisfactory performance.

Exemplary Performance

In addition to meeting all criteria for satisfactory performance, one of the following criteria must be achieved to obtain a ranking of exemplary performance.

- Recipient of a recognized teaching or mentoring award from students, residents or peers

- Regional or national recognition for instruction or other educational contributions

- Organized or presented regional, national, or international workshops, conference, or symposia to improve teaching of others

- Invitation to provide consultation or training of faculty members outside the School of Medicine

- Instructional materials developed by faculty member used by other educators outside the School of Medicine

FACULTY DEVELOPMENT INITIATIVES

- New faculty members are required to participate in six hours of faculty development as a condition of appointment. In these sessions, faculty members learn about the mission of the school, the goals and objectives of the curriculum, role modeling, professionalism, and core skills in effective teaching and assessment.

- Teaching faculty continue to participate in two hours of faculty development programs annually to maintain their medical school appointment.

- All faculty members are required to participate in an annual faculty retreat offered at the beginning of each academic year. The retreat includes a faculty orientation to the university's mission and philosophy, goals, educational program objectives, curricular template, and methods of assessment for new faculty.

- Existing faculty will be updated on the program objectives and any curricular changes or innovations.

- Teaching skills will be introduced, reinforced, and expanded and may include topics such as teaching at the bedside, giving constructive feedback, summative evaluation methods, facilitating small-group learning, using technology in the classroom, how to use the electronic student evaluation system, mentoring skills, and career counseling skills.

- Faculty who are unable to attend this retreat may fulfill their faculty development requirements by attending other school of medicine workshops either in person or online.

- Each year, all faculty are required to complete an online module reviewing the educational program objectives and document electronically that they have done so.

- Many sessions for clinical faculty members, including the annual retreat, confer continuing medical education credits to acknowledge participation.

- Both personal development and professional development are school of medicine core values.

- Faculty development programs help us attain our goals for our school and our students, and provide faculty members the opportunity to continue their professional development as effective educators.

- Each full-time faculty member receives $4,000 annually to be used for customized personal and professional development.

- The associate dean for assessment and faculty development partners closely with the senior associate dean for academic affairs, course directors, block coordinators, and the following university organizations and departments to provide high quality interprofessional faculty development opportunities: Quinnipiac University Faculty Collaborative for Excellence in Learning and Teaching, the faculty development committee of the health professions schools, the Department of Information Services, and the Quinnipiac University Center for Interprofessional Health Education.

- In collaboration with these institutional organizations, the associate dean for assessment and faculty development will conduct faculty development needs assessments and hold at least one faculty development retreat each year, as described above. The Quinnipiac University Faculty Collaborative for Excellence in Learning and Teaching also holds at least one major symposium per year.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

1. 1. Faculty recruitment has been a tremendous success, while concurrently presenting some challenges. We have been able to recruit a strong core cadre of faculty who are dedicated to medical student education and who fit into our unique culture. Keys to this success include:

   a. **Selecting for proven commitment to teaching.** In reviewing applicants' folders, assessment of classroom teaching, student mentoring/advising and educational committee involvement has superseded the evaluation of research or clinical prowess. We then test this, by asking every candidate to present a medical student-level didactic presentation (to either PA students or to our faculty and administrators) during her or his interview day, which is formally assessed. Highly qualified candidates have been rejected on the basis of poor teaching skills or behaviors (examples have included rude and pejorative interactions with students, disorganized content, and poor articulation or public speaking ability). We believe this is a unique approach to establishing a medical school faculty.

   b. **Assessing character.** We have developed a comprehensive assessment form for each candidate, which includes several items focusing on prior educational experience (teaching, mentoring, committee work); 17 items assessing personal/intellectual characteristics, interpersonal and communication skills; and four items assessing fit for the school of medicine's core values. We have rejected highly qualified applicants on paper who received consistent negative ratings for professionalism or awkward interpersonal skills (examples: angry and pessimistic candidates, individuals using profanity or treating administrative staff with disrespect). One measure of the success of this process is that our evaluation form has been officially adopted for all faculty hires across the entire university.

   c. **Selecting for potential.** We have carefully weighed our review of prior accomplishments with an assessment of a candidate's ultimate capabilities and an educator and colleague. Borrowing heavily from the positive psychology model employed by human resource managers in business organizations, we have recruited and hired individuals who show promise because they demonstrate adaptability, resiliency, optimism, humanism, and an internal locus of control. In fact, we have applied this model to the objectives for both our medical student applicants and graduates, to create a seamless and mutually supportive environment. We believe that we have constituted a faculty that overall is happy, collaborative, cohesive, and self-directed, and will serve as an ideal professionalism role model for our students.

2. Developing and sustaining a unique cultural identity has been a highly rewarding enterprise. Guided by the president's and the dean's collective vision, the School of Medicine has grown to embrace core values: student and patient centeredness; inclusivity and respect for diversity; a focus on teaching, professionalism, and academic excellence; and a commitment to address community/global healthcare needs and healthcare disparities. These principles have informed faculty and administration recruitment, curriculum development, admissions criteria, and student academic policies.

3. All school of medicine administrators, faculty, and staff are willingly and fully committed to our original mission of training primary care physicians who will be adept at working in interprofessional healthcare teams. The School of Medicine has worked to serve as a metaphor for these missions – in creating a generalist view of medical education and in being a valued and responsible partner in the greater Quinnipiac University community:

a. Our curriculum has been designed to present students with a comprehensive view of the medical arts and sciences, with an overreaching goal to provide all graduates with a complete skill set to practice medicine for a lifetime, in any field. We hope to encourage a large percentage of our graduates to enter a primary care field, and expect nearly all to become clinicians caring for patients. We have deliberately and respectfully left the training of physician-scientists to others better suited to do so.

b. We have been successful thus far in becoming a valued-added member of Quinnipiac University. We have incorporated faculty and leaders from diverse undergraduate and graduate disciplines in our recruitment and curricular efforts. As equal partners, we have worked with the Schools of Health Sciences and Nursing to forge multi-school affiliation agreements with partner hospitals, to develop the Center for Interprofessional Health Education, and to acquire educational grants. In this our first full academic year on site, many faculty members have taught classes for other schools, and have served on search committees and participated in university initiatives.

LESSONS LEARNED AND SOURCES OF PRIDE

While our successes have outweighed failures to date, there have been challenges:

1. Faculty recruitment. As we select highly qualified faculty members (as described above), we have favored "cultural fit" over discipline-specific expertise. This has left us, during this growth phase, with some gaps in content expertise as we design our curriculum. We have no doubt we will eventually fill all disciplines with content experts, but the impact on our curriculum planning process is undeniable—some faculty members are not comfortable with the uncertainty and speculation this has created. We would not do it differently, but would caution other schools to consider this issue. To use a sports team metaphor, do you use the draft to take the best athletes available, or to fill specific position needs?

2. Growing Pains. An unanticipated issue is how to incorporate new and experienced voices into any process—from curriculum development to devising student policies—without reinventing the final product each time. We expect and welcome evolutionary changes to course structure, content and official policies; the challenge has been to resist revolutionary changes. This is particularly true for us, as we are designing a totally integrated curriculum and recognize the domino effect of any change on other components. The inherent dilemma for any developing school is that draft work needs to be started by whoever is currently on site, and those drafts will be modified as others are hired. New schools would do well to consider how to do this in an efficient manner that remains respectful of earlier work.

3. Accreditation versus the Final Curriculum. As a new school, we are consistently balancing the need to design an idealized final product with accreditation deadlines. In preparing the database for preliminary LCME accreditation, several committees needed to formally approve various documents (e.g., curriculum, admissions criteria and process, the faculty handbook and student academic policies). Many can and have been finalized, but curricular development will remain an ongoing process until students matriculate. Depending on a growing faculty (as described above) and moving from a week-by-week level of content to minute by minute, while simultaneously preparing for submission of the database and for a LCME site visit, has been a challenge. Faculty angst about the level of detail expected for each preliminary stage has been greater than anticipated. This reinforces the need for new schools to hire a resilient and adaptable faculty. As a philosophical side issue, one can posit whether the very need to create interval drafts to meet an accreditation timetable ultimately favors expediency over creativity.

MOST PROUD OF TO DATE

- Creating a positive and inclusive work environment. As evidenced at a recent retreat for the entire 26 members of the school of medicine, there is a sense of community that none of us have experienced in other schools.

- Respect, affability, optimism, and a shared commitment for excellence are pervasive elements.

- Our institutional cultural spirituality. To a person, the school of medicine community shares a common understanding of our meaning and purpose.

- All faculty and administrators helped craft our Mission, Vision, and Values statement; all new faculty will be selected with these principles in mind. Once again, we are reveling in this sense of shared purpose, which none of us have felt before.

- Most concretely, we are proud of designing what we believe is a unique model for medical education—All faculty members are hired to teach, and expected to contribute at least 70 percent of their effort in direct student education. No faculty member is asked to generate her or his salary through research grants or clinical income.

- While faculty are encouraged and expected to participate in scholarly activity (up to a 30 percent time commitment), being a school devoted to the education of medical students remains our ideal.

Charles E. Schmidt College of Medicine at Florida Atlantic University
Boca Raton, Florida

Lindsey Henson, M.D., Ph.D.
Vice Dean for Medical Education and Student Affairs

MISSION AND VISION FOR THE NEW SCHOOL

The mission of the Charles E. Schmidt College of Medicine is to create and sustain an environment of professionalism, scholarship, intellectual inquiry, and inclusiveness that enables our faculty and students to achieve their respective goals as healthcare professionals and biomedical scholars who are recognized by their colleagues for their professional excellence and by the communities in which they live and work for their involvement and commitment to the health and well-being of their fellow citizens. The College of Medicine is committed to playing a pivotal role in achieving the following critical state goals: (1) producing physicians who are prepared to provide the highest-quality health care; and (2) producing scientists at the forefront of basic, applied and translation biomedical research, including physician-scientists who can meet Florida's biomedical research and medical faculty workforce needs.

- The mission statement was developed during 2010-2011 as part of the evolution of the college from the regional medical education program that had been associated with the University of Miami to an independent medical school.
- To address the first goal, the College of Medicine has designed a curriculum that builds on its position as a community-based medical school in South Florida by fostering relationships with a range of community hospitals across two counties for the Year 3 longitudinal integrated clerkships, engaging volunteer community physicians in teaching throughout the four years of medical school, offering a comprehensive geriatrics curriculum, and engaging community organization with students for required service learning projects.
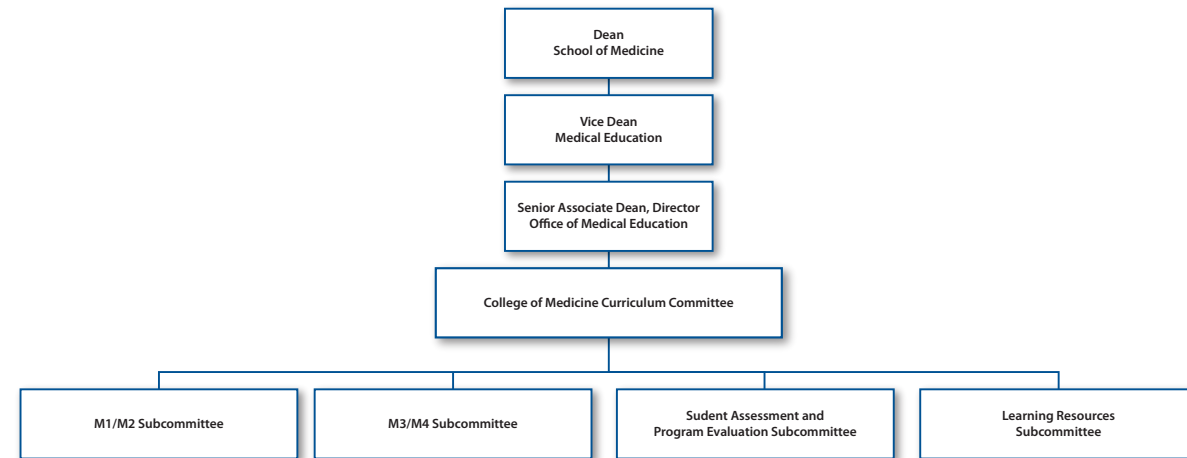- New research collaborations are being pursued to address the second goal.

RELATIONSHIP TO THE PARENT UNIVERSITY

- The College of Medicine is one of 10 colleges at Florida Atlantic University (FAU), which is part of the Florida State University System.
- The Florida Board of Governors has statutory responsibility for governance of all public universities in the state; responsibility for the operation and maintenance of each state university's education programs is delegated to the university's Board of Trustees (BOT).
- The FAU BOT serves as the governing board for the College of Medicine and for all other colleges at FAU. Situations that require approval of the FAU BOT are generally limited to approval of new academic programs, program termination, and program review.
- The university president and the president's leadership team, including the provost, are responsible for day-to-day administration of the university.
- The dean of the College of Medicine, its chief academic and administrative officer, reports to the provost, as do the deans of the other nine colleges.
- FAU administrative policies and procedures apply to faculty, staff, and students in the College of Medicine.
- The primary source of revenue for the college is the recurring appropriation from the State of Florida, which is carved out from the overall university budgets, as is the norm for medical programs throughout the State University System.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The College of Medicine Curriculum Committee (COMCC) is the faculty committee charged with responsibility for curricular design and development.
- The COMCC meets monthly and reviews and approves all aspects of the curriculum, including academic calendars for each year; course and clerkship schedules including weekly distribution of time for small groups, lectures, protected time for independent study, and other activities; coordination and integration of content within and across academic years; consistency of content with educational program objectives; grading policies and methods of student assessment; student learning outcomes; and program evaluation data for courses, clerkships, and the curriculum as a whole.
- The COMCC has four standing subcommittees: 1) the M1M2 Subcommittee, which oversees content and consistency of the first two years; 2) the M3M4 Subcommittee, which oversees the content and consistency of the third and fourth years; 3) the Student Assessment and Program Evaluation Subcommittee, which reviews both the program for assessing student performance and methods for program evaluation, including faculty teaching; and 4) the Learning Resources Subcommittee, which provides recommendations on library collections, electronic resources, IT services, and other aspects of educational technology.
- The COMCC reports to the dean through the educational administrative leaders to ensure implementation of the planned curriculum.
- The COMCC also appoints ad hoc working groups to make recommendations about specific issues (e.g., design of the end-of-year integrated Institutional Competency Assessments; use of customized NBME examinations in courses).
  - Examples of course development actions that are handled at the level of the course or clerkship include selection of individual faculty for teaching, selection of instructional methods for specific learning objectives (e.g., small group vs. lecture, patient experience vs. simulation); scheduling of sessions within the typical weekly schedules and other guidelines set by the COMCC; selection of textbooks and other teaching materials; selection of assessment methods within guidelines set by the COMCC.
  - Examples of course development actions that require COMCC or other central approval include selection of course/clerkship directors (department chairs and vice dean); identification of course goals and objectives (COMCC, M1/M2, or M3M4); change in instructional time for a course, sequence of courses, or location of a course within the curriculum (COMCC); changes in competencies, educational program objectives, and outcome measures (COMCC).

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

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                    Dean
               School of Medicine

                   Vice Dean
                Medical Education

         Senior Associate Dean, Director
          Office of Medical Education

        College of Medicine Curriculum Committee

  M1/M2 Subcommittee   M3/M4 Subcommittee   Student Assessment and    Learning Resources
                                           Program Evaluation Subcommittee   Subcommittee
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SUPPORT FOR THE EDUCATIONAL PROGRAM

- The Office for Medical Education is directed by the Senior Associate Dean for Medical Education and Faculty Development (SADMEFA).

- There are currently five full-time staff who report to the SADMEFA and who support the delivery of the Year 1 and Year 2 curriculum (scheduling of classes, online calendars, Blackboard, other educational software including curriculum mapping), student assessments (exams, OSCEs, faculty and peer narratives, final grade reports), and program evaluation (student end-of-course and end-of-semester surveys and focus groups evaluating faculty teaching and courses).

- When the Year 3 clerkships begin in 2013-2014, additional staff will be added.

FINANCIAL SUPPORT

- Financial support for the educational program is based on state appropriations and tuition, with modest projected additional revenue from the newly formed practice plan, grant overhead, and philanthropy over the next three to five years.

- Additional revenue will be used to enhance the educational program and offset tuition increases.

- Tuition is currently projected to represent less than 25 percent of total revenue when the College of Medicine reaches a full complement of 256 students in 2014-2015.

- The medical education budget includes salaries and fringe benefits for deans and staff for education, student affairs, and admissions, plus other expenses that are specific for the functions of each area.

- The annual budget is developed by the vice dean for medical education and student affairs, in consultation with the deans responsible for each area and the assistant dean for finance, and presented to the dean for review and approval.

- Budgeted funds for teaching faculty are managed by the departments, with the exception of funds to support community preceptors who teach in Years 1, 2 and 3, which are managed by the Office for Medical Education.

- Teaching needs for the educational program are identified by the vice dean and SADMEFA in consultation with the course and clerkship directors.

- Teaching effort and assignments for individual faculty and needs for hiring new teaching faculty are developed by the department chairs in consultation with the vice dean.

- The dean has final authority over the medical education budgets and is therefore able to bring additional resources to bear when new needs are identified.

LEARNING OUTCOMES

- The faculty has defined 11 General Competencies – Medical Knowledge and Research Skills, Patient-Centered Care, Ethics and Law, Professionalism, Interpersonal and Communication Skills, Cultural Competency, Health Promotion and Disease Prevention for Patients and Populations, Lifelong Learning and Self-Improvement, Systems of Health Care Practices, Self-Awareness and Personal Development, and Community Engagement, Service and Advocacy.

- For each General Competency, there are a number of Educational Program Objectives.

- The Educational Program Objectives provide the overarching framework for curriculum planning (sequence of courses, types of learning activities within courses, alignment of basic science and clinical courses within semesters, and selection of methods of formative and summative assessment of student performance).

- Implementation of the curriculum plan at the level of individual courses is the responsibility of the individual course directors, who adhere to the overall plan and are expected to ensure that the content in their courses addresses the Educational Program Objectives.

- Students must pass each course or clerkship in the curriculum, as well as integrated Institutional Competency Assessments, their Professional Competence Portfolios, and USMLE examinations, to demonstrate satisfactory academic progress.

- The combination of assessments addresses all the General Competencies.

STUDENT ASSESSMENT

- The COMCC expects course and clerkships directors to use a variety of performance measures that are appropriate for the competencies being assessed.

- For basic science courses in Years 1 and 2, no more than 70 percent of the grade can be based on Web-based multiple-choice examinations; the school uses both internal and customized NBME exams.

- All courses and clerkships must include narrative assessments by faculty.

- Other types of assessments used in Years 1 and 2 include lab practicals, problem sets, and PBL cases that students analyze individually and submit for grading, take-home essay examinations, written projects (e.g., EBM searches), OSCEs, a poster presentation for the required service learning project, and completion of patient logs.

- Year 3 clerkships will use NBME subject examinations, global ratings and narrative feedback from faculty, oral examinations, formal case presentations, completion of all required experiences and procedures in patient logs, and a professionalism rating by the clerkship directors.

- Students also complete other types of assessments that are not course- or clerkship-specific, including 1) USMLE Steps 1, 2CK, and 2CS; 2) integrated Institutional Competencies.

- Assessments that focus on clinical skills, critical thinking, and general medical knowledge at the end of each of the first three years; and 3) yearly Professional Competence Portfolios that are organized around "Tasks" that are developmentally appropriate for students, supported by the curriculum for each year, and represent an important component of professional competence that is needed for the transition to the next year.

- Students analyze their performance and develop and implement individual learning plans, with coaching by their faculty learning community advisers.

CLINICAL EDUCATION

- In Years 1 and 2, students spend approximately one half day a week in the office or clinic of their community preceptor, supplemented by half day sessions in Department of Health clinics with uninsured and under-insured patients, home visits to elderly individuals in interprofessional teams (medical, nursing, and social work students), teaching rounds with complex inpatients focusing on the history, physical exam, and diagnostic reasoning, and visits to hospice patients with a palliative care physician and nurse.

- The Year 3 curriculum is organized into two 24-week Longitudinal Integrated Clerkships (LICs) – Medical and Surgical Sciences (MSS) and Family and Community Health Sciences (FCHS).

- Students will take these clerkships in sequence, with half the students completing MSS first, and half the students completing FCHS first.

- A core developmental clinical skills curriculum that cuts across disciplines will run across the full year, with assessment and formative feedback occurring at specific intervals.

- Students will be assigned to community hospitals and health systems, with almost all teaching by physicians on the affiliate faculty rather than residents.

- MSS includes medicine, surgery, and geriatrics, which is a curricular thread and focus of research in the college.

- FCHS includes obstetrics and gynecology, pediatrics, preventive medicine, and psychiatry.

- Both LICs include experiences in emergency medicine, neurology, anesthesia, critical care, pathology and radiology. In addition, each student will have a longitudinal outpatient experience with a medicine or family medicine preceptor one half day per week throughout Year 3; student will develop a patient panel and follow them throughout the year.

- Within each LIC, groups of two to four students will rotate through a series of planned inpatient and outpatient experiences for two to five weeks (e.g., pediatric wards, labor and delivery and newborn nursery, inpatient psychiatry, outpatient surgery, medicine wards/critical care, inpatient surgery/anesthesia outpatient subspecialty clinics, geriatrics).

- Weekly schedules include one half-day for didactics, one half-day for the longitudinal preceptor, and two half-days for independent study, electives, and following panel patients or new patients into other care settings.

- A major goal is for students to understand the course of disease, the patient and family experience of care, and the system of care.

- Year 4 will include two required sub-internships, additional clinical experiences involving direct patient care, and other electives.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

The Integrated Patient-Focused Curriculum (IPFC) is guided by and clearly reflects adherence to the following principles in its design, implementation and early outcomes:

1. Medical students should learn the sciences basic to medicine in the context of patient care and patient cases

2. Continuity with patients, faculty, peers, advisers, and healthcare systems is fundamental to developing the range of clinical skills and knowledge students will need to succeed in residency and the practice of medicine

3. The learning environment should be student centered, supportive and collegial

4. A goal of the curriculum should be to foster curiosity, self-directed learning, and teamwork skills.

HIGHLIGHTS INCLUDE:

- Basic science courses that integrate content within and across courses, with a focus on active learning, including student-directed problem solving (problem-based learning), peer teaching in anatomy, small-group discussions in the clinical curriculum, and simulations.

- Exposure to patients from the first week of medical school in the classroom and in direct patient care.

- Continuity with community physician preceptors and patients in Years 1, 2 and 3.

- Continuity advising throughout medical school with Learning Community Advisers (physicians who advise 10 to 16 students from each entering class) and two society deans, each of whom provides student affairs support for half of each entering class.

- Geriatrics curriculum, including the interprofessional SAGE (Senior Aging and Geriatrics Educator) program that links students with elderly mentors in Year 1 and a required clerkship in Year 3.

- Required service learning project using the community-based participatory research model.

- Longitudinal Integrated Clerkships with a wide range of affiliated hospitals and clinical sites, providing breadth of hands-on experience with patients, attending physicians, other healthcare professionals, and healthcare systems.

- Breadth of assessment methods, including learning portfolios that use a unique model focusing on areas of professional competence that cut across competencies and repeated cycles of developing and implementing individual learning plans.

- Small class size and readily available faculty, with a collegial, supportive environment that is viewed by students as a major strength of the school.

FACULTY

FACULTY RECRUITMENT

- New full- and part-time regular (employed) faculty are recruited with a formal search process to address specific needs.

- Most of the current regular faculty were originally employed in the regional campus program and remained on faculty when the school became independent.

- Volunteer (affiliate) faculty – primarily physicians in the community – are identified by referral from affiliated hospitals, from other volunteer faculty, or via letters of interest which are usually directed to the dean.

- Because of its location, the college is a magnet for retired physicians interested in teaching.

- The school has two departments – Biomedical Science, with about 20 regular faculty, and Integrated Medical Science, with approximately 40 regular faculty and more than 500 affiliate faculty.

- Over the next few years, the regular faculty is expected to grow by about 40 percent and the clinical affiliate faculty is expected to grow to more than 650.

- The College of Medicine is highly dependent on volunteer clinical faculty from the community for teaching across all four years of the curriculum.

- Without a practice plan, the College of Medicine has had difficulty recruiting full-time clinician educators at the assistant professor or associate professor level whose goal is to build a career in academic medicine, particularly candidates from outside the region; it has been easier to recruit junior faculty who already reside and work in the community.

- Most of the clinician educators on the regular faculty are at senior ranks and are no longer in active practice.

- The majority of the clerkship directors are part-time (0.2- 0.4 FTE) regular faculty who maintain their private practices in the community.

- The basic science department is weighted to faculty who have achieved tenure and plans to recruit only a small number of additional faculty in very specific research areas.

- Another challenge is the difference between expectations in the medical school for its faculty (e.g., 12-month vs. nine-month appointments, teaching loads, expectations for scholarship for promotion and tenure, predominantly non-tenure-track faculty in the clinical department, salary structures) and expectations of the university for all other faculty and colleges.

- The dean and the new medical school have very strong support from the president and the university; however, significant time is spent on educating university administrative leaders and committees to unique needs of the medical school and modifying existing polices and processes when necessary, and relates not only to faculty recruitment, but also to other matters.

VALUING TEACHING

- The school's primary priority is developing the educational program for the medical students; all faculty have teaching responsibilities and quality of teaching (as judged by student evaluations, peer evaluations, and student outcomes) is a major factor in annual performance evaluations.

- The dean has made it clear that satisfactory teaching performance is a prerequisite for continued appointment to the faculty of the College of Medicine.

- Faculty development ranges from group training activities to focused individual feedback and remediation.

FACULTY DEVELOPMENT INITIATIVES

- Faculty development is organized by the Office for Medical Education and includes monthly to bi-monthly workshops for all faculty, course specific sessions, and a course (COM Faculty Development) on Blackboard.

- Workshops include topics such as competency-based education, learner assessment, writing multiple-choice questions, simulation-based education, problem-based learning facilitation, and providing effective feedback.

- Most workshops are interactive and include exercises for participants to practice their skills. Several each year are presented by visiting professors.

- Course-specific faculty development sessions include topics such as preparing community preceptors for their role with students, preparing faculty for teaching clinical skills and rating OSCEs, managing small-group dynamics, formative feedback, and PBL case development.

- Attendance for the PBL sessions during 2011-2012 ranged from 10 to 14 faculty members. Materials from all workshops and other sessions are posted in a Blackboard course, which is available to all faculty.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The transition from a regional campus program to Preliminary LCME Accreditation for an independent medical school proceeded successfully on a very short timeline once the decision was made to pursue this course, despite multiple political and fiscal challenges. This success was due to the support of the University, FAU's Board of Trustees, the Florida Board of Governors, state legislators, community physicians and leaders, and donors and the tireless efforts of the founding dean and COM faculty and staff.

- Because of the short timeline, the COM had a very truncated admissions cycle for its inaugural class (offering its first interviews in March 2011 for a start date of August 2011). In spite of this, an outstanding group of students was recruited due to the effective implementation of a well-organized strategic plan developed by the Office of Admissions.

- The faculty, who were accustomed to the regional campus culture and curriculum, have successfully implemented the first year of the new FAU COM curriculum, which differs markedly in both educational philosophy and emphasis on self-directed, active learning.

- The success of the curriculum is evidenced by student satisfaction, student learning outcomes, and faculty ownership of the program.

- The COM and several local hospitals have formed a GME Consortium to develop new residency programs.

- The physical space, while relatively new and modern, was originally designed to support a much smaller student body. It has been remodeled, and with careful planning, the COM can meet the teaching needs of the program at the current class size, but there is no excess capacity to accommodate special events, classes that include students from other colleges, unanticipated changes in the teaching schedules, or offices for new faculty in the COM building.

  – Lesson Learned: Build to allow for the next iteration of your program; include some flexible or unfinished space.

- The timeline for the transition resulted in less opportunity for faculty to have input to the vision, details for the educational program design, and preparation for preliminary accreditation site visit than desired.

  – Lesson Learned: Unless there are compelling reasons to do so, don't rush into it. Set target dates that are realistic. Take enough time to plan well, but not so much time that forward progress isn't apparent. Create a timeline that includes flexibility for unexpected events.

- The COM has pursued a number of initiatives that, while valuable in the longer run, have been very time-consuming for the small core faculty, who are managing multiple priorities, including the main task of developing the M.D. program and becoming a fully accredited medical school.

  – Lesson Learned: Have a clear focus on the goal and a vision for the program; don't go off on tangents.

MOST PROUD OF TO DATE

- The COM has strong, supportive relationships with community physicians and hospitals throughout our region, and the students are thriving in a demanding curriculum.

Florida International University Herbert Wertheim College of Medicine
Miami, Florida

George Dambach, Ph.D.
Associate Dean for Curriculum and Medical Education

David Graham, M.D.
Associate Dean for Clinical Education

John A. Rock, M.D.
Founding Dean
Senior Vice President for Medical Affairs

MISSION AND VISION OF THE NEW SCHOOL

The mission of Florida International University Herbert Wertheim College of Medicine (FIU HWCOM) is to lead the next generation of medical education and continually improve the quality of health care available to the South Florida community. The College of Medicine will accomplish its mission by:

- Training physicians to serve South Florida's diverse population through a patient-centered curriculum instilling cultural competence,
- Providing Florida students greater access to medical education, and
- Fostering research to discover and advance medically relevant knowledge.

The mission is addressed annually in the Strategic Planning process and has not changed since inception of HWCOM in 2009.

WHAT IS THE RELATIONSHIP TO THE PARENT UNIVERSITY?

The mission of Herbert Wertheim College of Medicine is parallel and complementary to the mission of its parent university. HWCOM is located on the main Florida International University campus. An integrated academic health center is in development and HWCOM has established a clinical practice site on the campus. The HWCOM dean reports to the university president as senior vice president for health affairs and to the provost as dean of HWCOM. HWCOM and the university have coordinated administrative support services. State of Florida funding for HWCOM is separate from the university appropriation and is managed by HWCOM in accordance with policies set forth by the university office of finance and administration.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

The curriculum management structure is shown in the organizational chart below.
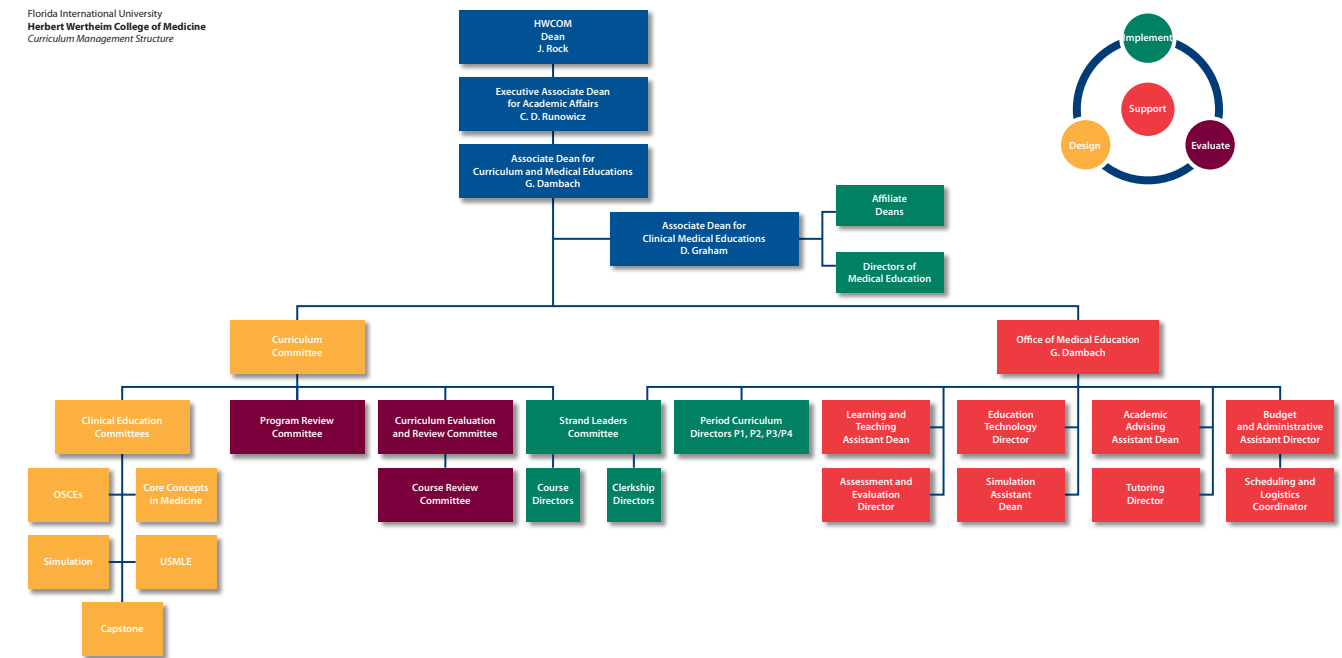
The Curriculum Committee consists of 21 voting members:

- Chair (one)
- Strand Leaders (five)
- Clerkship Directors (seven)
- Pathologist (one)
- Basic Scientists (four)
- Students (three)

The Curriculum Committee Chair is appointed by the dean; strand leaders and clerkship directors and faculty members are appointed by the executive associate dean for academic affairs. Medical students are selected by their class, one each from Years 2, 3, and 4. Nonvoting, ex officio members of the Curriculum Committee include faculty and staff with responsibilities related to curriculum as determined by the associate dean for curriculum and medical education, who also serves as an ex officio member if not appointed chair. Among the nonvoting ex officio members are the associate dean for clinical medical education, assistant dean for curriculum and medical education (Simulation), assistant dean for learning and teaching, associate dean for academic advising, director of assessment, director of educational technology, associate dean for student affairs, executive associate dean for academic affairs, and executive associate dean for student affairs. Attendance at meetings is open to all faculty and staff.

SUPPORT FOR THE EDUCATIONAL PROGRAMS

OFFICE OF MEDICAL EDUCATION

- The Office of Medical Education is within the Office of Academic Affairs and under direction of the associate dean for curriculum and medical education.
- Support functions within the Office of Medical Education include clinical education, simulation program and laboratories, assessment, educational technology, teaching and learning, academic assistance, and academic advising.

FINANCIAL SUPPORT

- The educational program is supported from state appropriations, student tuition, and philanthropy.
- The educational program is budgeted directly within HWCOM (program- or mission-based format).

LEARNING OUTCOMES

See Appendix C

STUDENT ASSESSMENT PROGRAM

- Syllabi include assessment plans and are reviewed by the Curriculum Evaluation and Review Committee prior to each iteration of courses.
- Each course/clerkship and the effectiveness of assessments are systematically reviewed annually, following completion of the course, by a committee of faculty and students chaired by the assistant dean for learning and teaching.
- General competency of students is formally assessed in Objective Structured Clinical Examination (OSCE) format as a promotion requirement at two stages: (1) for promotion to the clerkship period of study and (2) at completion of the clerkship period for promotion to the final year of study.
- Course-specific assessments in a variety of formats are conducted in all courses; passing United States Medical Licensing Examination (USMLE) Step 1 is a promotion requirement for entry into the final year of study.
- An assessment unit supports faculty in preparation, delivery, and evaluation of assessments.

CLINICAL EDUCATION

- FIU does not own or operate its own hospital.
- Formal affiliation agreements for educational programs have been established with major providers in the surrounding Miami-Dade County and Broward County communities, including public and private institutions. This provides HWCOM students a broad variety of experiences in the public and private sectors.
- Clinical experiences begin with simulation and laboratory programs integrated with patient care in the first weeks of the program when students are assigned to local emergency rooms for four-hour shifts on weekends; students also are assigned to monthly sessions with local primary care physicians. This continues for the first two years.
- In the third year of the educational program, students complete their major core clerkships: OBGYN, Pediatrics, Internal Medicine, Family Medicine, Geriatrics, Surgery, Neurology, and Psychiatry; a two-week experience in Radiology also is required.
- In the fourth year, students have more flexibility in the choice of rotations, including four selectives, a subinternship, two electives, and two rotations of research (each rotation is four weeks).

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Longitudinal family and community experiences: NeighborhoodHELP™ is a service-learning program in which students are assigned to work with participating households in specific communities over the four years of medical school. Students work in interdisciplinary teams to improve the health of the households and the communities.
- Basic and clinical medicine is integrated over the first three years of the curriculum, culminating in USMLE Step 1 at the end of the third year. This yielded a strong outcome in the first cohort with an average Step 1 score of 233 and a 97 percent first-time pass rate.
- A distinct Professional Development strand provides a formal professionalism curriculum over all four years of the program.
- The curriculum includes a research scholarship project that all students are expected to complete prior to graduation.

FACULTY

FACULTY RECRUITMENT

Faculty and leadership are recruited through an open national search and application process. Many clinical faculty members have been recruited from the robust professional community in metropolitan Miami. Basic science faculty members have been recruited in two modes: primary teaching roles and primary research roles. Great enthusiasm for clinical teaching roles in the community has resulted in more than 1,500 voluntary and numerous part-time faculty appointments to provide teaching in clinical venues. Thus, student-to-preceptor ratios are favorable (usually 1:1).

CHALLENGES ENCOUNTERED RECRUITING FACULTY

Faculty recruits demonstrate high enthusiasm for the opportunity to join a new school; no major recruitment challenges have been encountered.

VALUING TEACHING

- Excellence in teaching is valued at the school and is one of the major criteria used in promotions.
- A faculty track exists for faculty with primarily educational responsibilities in nonclinical areas.

FACULTY DEVELOPMENT INITIATIVES

- The assistant dean for learning and teaching has responsibility for producing and implementing faculty development for full-time and voluntary faculty and residents who teach in our programs.
- The college and university sponsor frequent educational technology workshops.
- Faculty development is well supported and encouraged, including participation in national and international conferences and extramural meetings for advancement of medical education.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- Centralized management for development and implementation of the curriculum under the Office of Academic Affairs and establishment of a faculty Curriculum Committee have been successful.

- A separate, central budget for educational programs assures resources to deliver the planned educational programs.

- The plan to integrate basic and clinical education over the first three years has been successful with evidence cited above on USMLE performance and student evaluations of the programs. In particular, early clinical experiences foster motivation and incentives for study of basic science.

- Use of vocabulary lists and overview reading assignments for all instructional sessions, along with occasional readiness checks, has fostered an environment of early preparation for learning.

- The blend of private, public, and diverse organizational models among our clinical partners has produced a rich clinical experience for our students as they develop career plans.

THINGS THAT WOULD BE DONE DIFFERENTLY

- An attempt was made to develop a longitudinal, integrated clerkship program in the third year, but was unsuccessful because of the diversity of clinical sites involved.

- Creation of longitudinal clinical experiences providing continuity (same patients and same preceptors) has been challenging except for the neighborhood program noted below.

MOST PROUD OF TO DATE

- The faculty is committed to the education of our students.

- NeighborhoodHELP™ program already is showing measureable improvement in a number of health parameters in the communities served.

- Strong performance of the inaugural student cohort and high quality of each successive entering class reflect success of recruitment processes.

Florida State University College of Medicine
Tallahassee, Florida

Alma Littles, M.D.
Senior Associate Dean for Medical Education and Academic Affairs

Myra Hurt, Ph.D.
Senior Associate Dean for Research and Graduate Programs

MISSION AND VISION OF THE NEW SCHOOL

The Florida State University College of Medicine will educate and develop exemplary physicians who practice patient-centered health care, discover and advance knowledge, and are responsive to community needs, especially through service to elder, rural, minority, and underserved populations.

- The Florida State University College of Medicine (FSU COM), the first new medical school of the 21st century, was established in June 2000 by the Florida Legislature, with the mission of serving the unique needs of Floridians, specifically relating to service to elder, rural, minority, and underserved populations.

- The institutional priorities of the FSU COM were initially set by the Florida State Legislature when it created the medical school and defined its mission. Twelve years later, the faculty, staff, and students remain committed to the mission of the college, and early outcomes support it.

- The departmental/organizational structure and the educational program structure were developed with a focus on meeting the mission.

- The educational experiences in the pre-clerkship and clerkship years include geriatrics, behavioral and cultural content, and training opportunities in community settings including rural communities.

- As of May 2012, more than 56 percent of the college's 567 graduates have matched in primary care specialties (Family Medicine, Internal Medicine, Pediatrics, Obstetrics/Gynecology).

- Eighty-five graduates have completed GME training and entered practice, 16 (18 percent) of whom are serving rural and underserved populations (14 are practicing in rural communities and another two are serving predominately underserved populations in other areas).

- The college's outreach pipeline programs target underrepresented minority students from middle school to medical school in four north Florida counties, three of which are rural.

- The programs also include pre-med support and experiences for FSU and Florida Agricultural and Mechanical University undergraduate students, and a master's degree Bridge program which targets medical school applicants from target population groups who need additional training to prepare for success in medical school.

- All those who successfully complete the Bridge program matriculate with the next class of medical students. Between 20 and 30 of the matriculating medical students each year are products of the outreach pipeline programs.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

RELATIONSHIP TO THE PARENT UNIVERSITY

- FSU COM is located on the campus of one of the nation's elite research universities, Florida State University (FSU), a public institution, which has the Carnegie Foundation's highest designation, Doctoral/Research University-Extensive, and offers a distinctive academic environment built on its cherished values and unique heritage.

- The governing board of the college is the Board of Trustees (BOT) of Florida State University.

- The COM and university administrators work closely together and interact regularly on issues that impact the COM. Former President T.K. Wetherell was very supportive of the college's efforts to establish its regional campuses and in acquiring resources from the Florida Legislature to meet those needs.

- In February 2010, Dr. Eric Barron became president of Florida State University, succeeding Dr. Wetherell. President Barron entered with a clear understanding of the COM's mission and values. A short time after he arrived, President Barron made it a priority to meet with the COM Executive Committee and to begin visits to each of the regional campuses to learn more about the COM.

- In a demonstration of further respect for our working relationship, he appointed members of our leadership team to search committees for key university leadership, including the vice president for university advancement, provost, and vice president for research.

- The COM Human Resources division has a strong working relationship with the university to aid in the processing of faculty appointments, and promotion and tenure processes.

- The dean of the COM meets biweekly with the provost as a member of the university's Council of Deans. These meetings provide opportunities for the dean to gain support for managing resources in a manner that allows the COM to most effectively carry out its mission.

- The five department chairs and the deans of the COM meet twice yearly at the university's Chairs and Deans' meeting, where university priorities are discussed.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Curriculum Committee has responsibility for curricular design and development, implementation, and evaluation consistent with the mission of the college.

- Committees for Years 1 and 2 and Years 3 and 4 are subcommittees of the Curriculum Committee and are charged to continuously review their years of the curriculum, address implementation issues, and recommend changes to the Curriculum Committee for improvement of content, integration, and evaluation as necessary.

- The Curriculum Committee reviews all courses for quality and alignment with the institutional goals and objectives.

- The Curriculum Committee is responsible for evaluating institutional goals and objectives and pedagogical systems and proposing any needed changes to the senior associate dean for medical education and academic affairs.
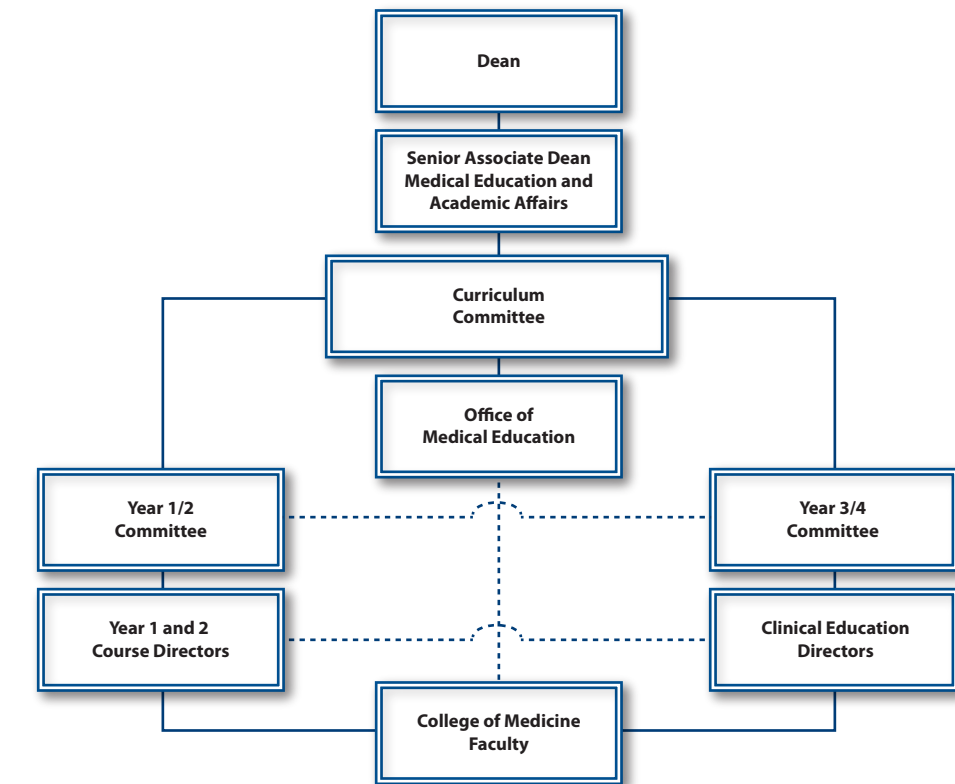
SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- Under the leadership of the senior associate dean for medical education and academic affairs (chief academic officer) are the Office of Medical Education (includes the Clinical Learning Center, Evaluation, Informatics), Office of Faculty Development, and Medical Library, all of which support the educational program.

- The Office of Medical Education provides the direct support of the curriculum, includes Medical Informatics and the Clinical Learning Center, and maintains the database for the educational program, including student evaluations.

- The Office of Faculty Development runs a very robust program that assists general and FSU-specific skill building for faculty.

FINANCIAL SUPPORT

- The largest source of FSU COM revenue (57.5 percent) comes from state appropriations, and we are acutely aware of the potential impact of the state's economic downturn.

- The FSU COM accumulated reserves in its early years sufficient to offset temporary reductions in state funding. This reserve provides the cushion needed to continue medical education programs in the face of state cutbacks, while strategically planning for the future.

- The college is growing its endowment and research portfolios and expanding its sources of practice plan revenues.
- An annual budget is established for the entire college, including the educational program.
- The budget is funded by state funds and resources provided by the dean.
- Management of the budget for the educational programs is overseen by the senior associate dean for medical education and academic affairs.
- Efforts to focus spending on mission-critical areas and to increase efficiency are made across the college.
- Budgetary needs for the Year 1 and 2 courses are communicated by course and clerkship directors to the associate dean for medical education.
- Similarly, needs for clerkships are communicated to the senior associate dean for medical education and academic affairs.
- The senior associate dean for medical education and academic affairs actively participates in setting the college budget, including the budgets for the Offices of Medical Education, Faculty Development, Student Affairs, GME, and the Medical Library.
- The individual works with the department chairs and regional campus deans to ensure that sufficient numbers and types of faculty members are available to implement the educational program.

LEARNING OUTCOMES

Learning outcomes have been defined and are available at Appendix D and also at::

http://med.fsu.edu/index.cfm?page=medicalEducation.institComp

STUDENT ASSESSMENT

- In addition to approximately four written block exams per semester in the first two years, the FSU COM uses a number of formative and summative internal and external measures to evaluate attainment of its educational program objectives.
- An important internal evaluation is of students' clinical skills using multistation FOSCEs (formative OSCEs) and OSCEs throughout medical school, including at the midpoint of the third year and a high-stakes OSCE at the end of the third year.
- Students who do not perform at the developmentally appropriate level on these evaluations are provided individual counseling and remediation.
- Students' participation in small-group sessions, encounters with standardized patients and simulators, and clinical performance in the preceptor program and on clerkships are all components of the overall assessment of our students.
- An important external measure is students' performance on NBME Subject and USMLE Step examinations.
- Timely summative and formative feedback is an explicit requirement for all courses and clerkships.
- During clerkship rotations, a medical school faculty member has sole responsibility for supervision of the medical student assigned to him/her.
- The clerkship directors have close contact with these faculty members regarding student education and supervision throughout the rotation, and clerkship directors meet with students on a weekly basis.

- Students also meet weekly with their respective regional campus dean during "Dean's Rounds" to discuss clerkship experiences and students' concerns.
- The education directors at the central campus assign final grades to all students for his/her discipline-specific clerkship.

Table of assessments performed on students and the educational program:

Results of USMLE or other national examinations
Student scores on internally developed examinations
Performance-based assessment of clinical skills (e.g., OSCEs)
Student responses on AAMC Medical School Graduation Questionnaire
Student evaluation of courses and clerkships
Student advancement and graduation rates
Match results
Specialty choice of graduates
Assessment of residency performance of graduates
Licensure rates of graduates
Specialty certification rates
Practice location of graduates
Practice type of graduates
Clinical education

- During the first two years, students participate in clinical learning in the Clinical Learning Center (CLC) located at the central campus facility. In the CLC, students are introduced to standardized patients and simulators.
- Clinical skills testing is also conducted in the CLC during the first three years, in the Doctoring 1 and 2 courses and for the OSCE in Year 3.
- In the first two years, students also participate in clinical preceptorships in the Tallahassee and surrounding communities, where they are matched with clinical faculty and spend time seeing patients in these private offices.
- The FSU College of Medicine has a unique clinical training model for the third and fourth year.
- Students are assigned to one of six regional campuses (Daytona, Fort Pierce, Orlando, Pensacola, Sarasota or Tallahassee), or the rural training site in Marianna, Fla., for clinical training.
- During required clinical experiences, our students learn through a direct one-on-one relationship with faculty members who are practicing physicians, primarily in private practice settings and who all have faculty appointments.
- While the FSU COM has affiliation agreements with approximately 90 hospitals and other facilities, over 60 percent of the educational experiences in Years 3 and 4 are in outpatient settings.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Enthusiastic recruitment and retention of practicing physicians as clinical faculty.
- One-on-one student to faculty teaching in the clinical setting.
- Majority of training in outpatient setting with an emphasis on primary care.
- Student performance, as measured by USMLE pass rates and match rates that are remarkable for a new school. On Step 1, FSU COM first-time takers exceed the national pass rate by more than a three-point average over the entire history of the school. On Step 2 CK FSU COM first-time takers have an average pass rate of 98 percent since the school was established. On Step 2 CS, FSU COM first-time takers have an average pass rate of 99 percent since the examination was established.
- Effective faculty development across distributed campuses that provides an outstanding level of quality improvement for the hundreds of clerkship faculty.
- Very strong geriatrics education and training in preventive, chronic, continuing and end-of-life care.
- A high degree of diversity among faculty and students and a broad array of highly successful outreach and recruitment programs to middle school through post-baccalaureate students from rural and other medically underserved communities in the Florida Panhandle.
- A strong track record of success in graduating students from educationally disadvantaged backgrounds, consistent with the mission of the school.
- A strong Clinical Learning Center that provides outstanding experiences with learning and evaluation utilizing standardized patients.
- Superb electronic access to resource materials through the library.
- Curriculum and faculty who embrace the mission and superb community physicians who are "excellent role models" working as professional colleagues in ambulatory environments.
- Excellent support from the IT division, which is available, accessible and helpful with laptop and PDA problems.

FACULTY

FACULTY RECRUITMENT

- Basic science faculty are recruited through national searches.
- Candidates are educated as to the importance of the school's mission and the commitment to the educational program prior to hiring and are not hired if they are not a good fit for the college.
- The FSU COM has a limited number of full time clinical faculty members who are recruited via national searches as well as from the local community.
- Recruitment of part-time clinical faculty in the communities where regional campuses are located follows a formula involving recruitment of a well-respected physician from the local medical community to serve as the campus dean and the formation of a community board in each regional campus community comprised of hospital chief executive officers, medical society leadership and other key representatives in the local medical community.
- Campus clerkship directors are also recruited from the local medical community and play a key role in recruiting clerkship faculty.

- The campus dean and community board are involved in verifying that physicians recommended to become faculty members are well respected in the community as excellent physicians in their specialties.
- Community physician faculty member retention is over 85 percent at all campuses over the years of the college's existence.
- When the college developed its initial curriculum, senior faculty members were recruited and practice opportunities were not a primary goal. However, recruitment of more junior full-time clinical faculty for the central campus has been a challenge because of difficulties in finding part-time clinical practice opportunities in a full-time private practice environment, which is very different from the academic medical center practice environment.

VALUING TEACHING

- The FSU COM was created with a primary focus on education and educational contributions are highly valued and expected of every faculty member.
- Faculty members are assigned teaching roles as part of their annual Assignment of Responsibilities.
- The senior associate dean for medical education and academic affairs appoints course and education directors and provides a summary assessment of their performance in these roles to the department chair as part of the annual evaluation.
- Retention, promotion, and tenure decisions are based on the quality of performance in all assigned roles.
- The results of student assessments are provided to the department chair or unit director to be used in the annual performance evaluation as well as for more immediate feedback. This file is reviewed when recommendations for promotion and/or tenure, salary determinations, retention, or termination are made.

FACULTY DEVELOPMENT INITIATIVES

- The Offices of Medical Education and Faculty Development have implemented a Course Director Orientation for all new course directors. These offices provide ongoing support for faculty members as well.
- Faculty members in all five departments are encouraged and provided the opportunity to attend external workshops, conferences or meetings.
- Faculty members actively participate in these meetings, presenting papers, posters, or other educational sessions, and hold offices in the conferences' sponsoring organizations.
- Each faculty member has an allocation of up to $4,000 for conference and professional organization participation, professional memberships, educational material, and subscriptions each year.
- Additional funding is available through the dean, the Office of Medical Education, or the faculty member's department if attendance at a professional meeting is in the interests of the FSU COM and supports its mission.
- The Office of Faculty Development presents a workshop series each year to faculty members at each regional campus, and examples of these include incorporating students into a practice and use of library resources in the clinical setting.
- Clerkship faculty members are required to receive six hours of faculty development training before they are assigned a student.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

In addition to the highlights of the education program listed earlier, we believe the focused purpose for which the FSU COM was created, along with our very specific mission statement, helped create the following:

- Recruitment of extensive community clinical faculty to teach students in Years 3 and 4. Use of local physician leaders and a community board made up of community leaders, including all hospital systems in each community was critical to this process.
- Recruitment of a diverse student body, assisted greatly by successful outreach pipeline programs.
- Early clinical experiences in a state-of-the-art Clinical Learning Center and using community faculty in and around Tallahassee.
- Majority of training in the outpatient setting where majority of patient care occurs. Use of community-based faculty members has made this possible.

Things that would have been helpful that we recommend to others include:

- Implement a system to measure, study, and publish outcomes from the beginning.
- Develop a consolidated student and faculty information system to distribute information on students and faculty more efficiently and effectively.
- Take every opportunity to get the message out. Start publishing information on the school's development and successes early.
- Include succession planning from the beginning to ensure that key positions are filled with the right people. For example, make sure student affairs deans understand and support goals of admissions, educational program and overall mission of school.
- Be prepared to make changes in faculty when it is clear that someone is not meeting the college's goals/expectations.
- We often wonder what life would have been like if we had access to the document for development of new schools in 1999 and 2000.
- Make sure available resources are being used to maximally support the curriculum and overall mission while remaining good stewards of appropriate reserves.

MOST PROUD OF TO DATE

The College of Medicine has led the way with a unique and successful clinical training model, primarily in outpatient settings; is producing the doctors for the communities of greatest need – rural, minority, underserved and elderly; and is meeting its mission in the ways described below:

- A holistic admissions process that emphasizes selection of applicants with the potential to fulfill the mission to graduate physicians to serve elder, rural, minority, and underserved populations.
- The one-on-one apprenticeship clinical training primarily in outpatient settings has worked very well, mainly because of the robust faculty development program and very high faculty retention across all training sites.
- The FSU COM curriculum prepares the students well for success in medical school and in practice. Student performance on USMLE Steps 1 and 2 exceed the national pass rate. Our students are also matching at a high rate in primary care specialties.

- Matriculation, match, and graduation data, as well as other objective outcomes data, show that the outreach pipeline from middle school to medical school is recruiting the students needed to meet the college's mission of serving the populations of greatest need.
- Early data show that the FSU COM curriculum is preparing students to meet the community healthcare needs identified in our founding legislation and mission statement.
- Student performance, as measured by USMLE pass rates and match rates that are remarkable for a new school.
- Effective faculty development across distributed campuses that provides an outstanding level of quality improvement for the hundreds of clerkship faculty.
- High student satisfaction with the educational program, as documented in the AAMC GQ. COM students rate their experiences much higher than the national average in almost every category.
- A high degree of diversity among faculty and students and a broad array of highly successful outreach and recruitment programs to middle school through post-baccalaureate students from rural and other medically underserved communities in the Florida Panhandle.
- A strong track record of success in graduating students from educationally disadvantaged backgrounds, consistent with the mission of the school.
- Excellent study, relaxation, and social spaces (Learning Communities) at the central and regional campuses that foster a sense of community and encourage group learning and mutual support.
- Superb electronic access to resource materials through the library.
- Research funding that has increased over 500 percent since 2005 and now occupies about 20 percent of the FSU portfolio.

University of Central Florida College of Medicine
Orlando, Florida

Richard Peppler, Ph.D.
Associate Dean, Faculty and Academic Affairs

Basma Selim, Ph.D.
Director, Analysis, Planning and Accreditation

Julia Pet-Armacost, Ph.D.
Associate Dean, Planning and Knowledge Management

Deborah German, M.D.
Vice President for Medical Affairs and Founding Dean

MISSION AND VISION OF THE NEW SCHOOL

UCF College of Medicine Mission: The University of Central Florida College of Medicine educates and inspires individuals to be exemplary physicians, leaders in medicine, scholars in discovery, and adopters of innovative technology to improve the health and well-being of all. Our patient-centered mission is achieved by outstanding medical care and services, groundbreaking research, and leading edge medical and biomedical education in an environment enriched by diversity.

College of Medicine Vision: The University of Central Florida College of Medicine will be the nation's premier 21st-century college of medicine—a national leader in education, research, and patient care, recognized for supporting and empowering its students and faculty to realize their passion for discovery, healing, health, and life, and for its ability to create partnerships to transform medical education and health care.

College of Medicine Goals: The College of Medicine goals are aligned with the university's goals and express in broad terms what it will take to achieve the college's vision.

Goal 1: Achieve excellence in medical and biomedical education

Goal 2: Excel in research and discovery in biomedical science, medical education, and health care

Goal 3: Provide outstanding individualized patient care while transforming healthcare delivery

Goal 4: Be America's leading partnership college of medicine

Goal 5: Establish a diversified self-sustaining infrastructure to support future operations

RELATIONSHIP TO PARENT UNIVERSITY

- The College of Medicine was approved by the Florida legislature in 2006. It is an integral unit of the University of Central Florida, a metropolitan research university with more than 59,000 students, which ranks as the second largest public university in the United States.
- The mission of the UCF College of Medicine establishes the college as a major force in a leading metropolitan research university that leads as well as serves the Central Florida city-state.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The M.D. Program Curriculum Committee is one of the college policy committees with the responsibility to review, advise, assess, and make recommendations regarding the curriculum and educational goals of the M.D. program, and it develops the standards for the evaluation of teaching.
- Faculty members (regular or affiliated/volunteer) of the M.D. Program Curriculum Committee and its subcommittees are appointed by the dean.
- The associate dean for faculty and academic affairs serves as chair.
- Four student members represent their constituencies.
- Ex officio members represent faculty development, library, assessment, knowledge management, and student affairs.

The basic organization chart for the M.D. Program Curriculum Committee and its three subcommittees is provided below:
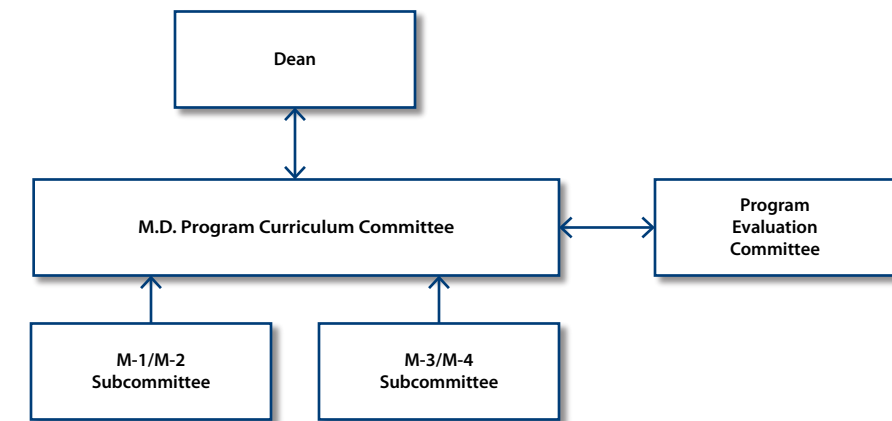
- The committee prepares periodic reports and its recommendations are submitted to the dean who presents them to the Executive Faculty and College of Medicine Enterprise.
- The goals and objectives of the M.D. Program Curriculum Committee are:
  - To be a leader among medical education programs by developing and creating an innovative M.D. educational curriculum that uses the latest technology and evidence-based educational methods
  - To assure the curriculum is in accord with the standards of the Liaison Committee on Medical Education and curricula of accredited U.S. medical schools by:
    - Reviewing and evaluating the college's undergraduate medical education curriculum against available objective standards and measurable curricular outcomes on a continuing basis
    - Recommending changes in the curriculum based upon the results of objective internal reviews, and external course and departmental reviews
    - Reviewing and evaluating proposed new educational offerings and curriculum changes from the faculty
    - Assessing student performance on internal and external examinations and evaluating whether anticipated outcomes are achieved

- To report findings and recommendations to the chief academic officer, the dean, and the Faculty Council
- To implement curricular additions and changes under the direction of the chief academic officer and dean
- To address curricular concerns of students, faculty, administrators, and external review bodies through a transparent process to assure all concerns about elements of the curriculum are impartially evaluated and objectively reviewed
- To monitor, coordinate, and assure the implementation of horizontal and vertical integration of the undergraduate medical education curriculum
- To optimize the efficiency and effectiveness of undergraduate medical education by using planned redundancy and integration and focusing on key concepts needed in the future practice of medicine

The composition of the M.D. Program Curriculum Committee is as follows:

- The M.D. Program Curriculum Committee is composed of voting and nonvoting members and chaired by the associate dean for faculty and academic affairs.
- The voting members include the chair, the respective chairs of the M1/M2 and M3/M4 Subcommittees, and the Program Evaluation Subcommittee; a faculty member representing the HB (Human Body) modules from M1; a faculty member representing the S (Systems) modules from M2; a faculty member representing C-1 (Psychosocial Issues in Health Care), P-1 and P-2 (Practice of Medicine), and I-1 and I-2 (Focused Individualized Research Experience); a faculty member representing M3 and M4; three additional faculty members (clinical and at-large), and student representatives from each class.
- Two of the voting faculty members also serve as the chairs on the M1/M2 and M3/M4 Subcommittees. These are the college's two assistant deans of medical education, one focused on integrating the basic sciences throughout all four years and the other focused on integrating the clinical sciences throughout the four years.
- The non-voting members include ex officio members representing faculty development, assessment, knowledge management, library, and student affairs, and one committee support staff member.
- As the college continues to grow, there may be some adjustments made to the curriculum committee organization.

The subcommittees of the M.D. Program Curriculum Committee are as follows:

- The M.D. Program Curriculum Committee has three subcommittees: M1/M2, M3/M4 and Program Evaluation. The membership of these subcommittees is based on one's role in the curriculum.
- Each subcommittee has defined charges, timetables, and memberships, as well as a chair approved by the M.D. Program Curriculum Committee. The standing subcommittees meet monthly or as needed.

M1/M2 and M3/M4 Subcommittees

- The M1/M2 and M3/M4 subcommittees facilitate communication among the educational program directors and discuss curricular issues within the respective years. These subcommittees are charged with reviewing all proposals for new undergraduate medical education experiences and significant modifications or changes in existing modules and clerkships offered within their years.
- These subcommittees review each educational module or clerkship in view of its educational objectives, content, delivery, or planned delivery, scheduling and student assessment. Each proposal is reviewed in the context of the continuum of medical education and its relationship and communication with all other undergraduate medical programs.

- Membership of the subcommittees consists of the appointed directors of the modules and clerkships. A representative from Clinical Skills and Simulation serves on each subcommittee.
- Student representatives and alternates serve as designated members of each subcommittee.
- Each subcommittee chair is a member of the M.D. Program Curriculum Committee with knowledge and understanding of the year's academic issues.
- The subcommittee chairs are the assistant deans of medical education.

PROGRAM EVALUATION SUBCOMMITTEE

- The Program Evaluation Subcommittee is charged with the internal and external review of the currency, efficiency, applicability, and effectiveness of the undergraduate medical curriculum of the College of Medicine. The subcommittee is responsible for gathering information and reporting to the curriculum committee.
- The Program Evaluation Subcommittee is composed of faculty representatives from each year of the curriculum, basic science and clinical science faculty members, member from the assessment office and students.
- The Program Evaluation Subcommittee is chaired by the vice-chair of the M.D. Program Curriculum Committee and is appointed by the dean of the College of Medicine.

SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

The Office of Faculty and Academic Affairs provides support to each of the modules and clerkships as described below.

- There is a Department of Medical Education which is one of the three organizational units of the college where faculty are assigned. Faculty members who have their appointment within this department typically concentrate on teaching in the M.D. program and scholarly activity involving research in medical education.

FINANCIAL MANAGEMENT

- The operating budget for the Office Faculty and Academic Affairs has been developed and approved by the dean to provide adequate funds to support the educational program.
- As the college has grown, it has moved to an adaptive planning process to determine the costs and needs.
- Each module and clerkship has created a budget to handle the specifics of the respective programs. These funds are provided through Faculty and Academic Affairs.
- Individual faculty members have professional development funds provided through respective departments.
- In addition, funds are provided to module/clerkship directors and coordinators to attend meetings that enhance their position skill sets.

STAFF SUPPORT AND SUPPORT OFFICES

- Coordinators assist faculty with the administration of the educational program.
  - There are two coordinators for the first year and the second year of the program, respectively.
  - Two coordinators handle the administration and coordination of the P-1 and P-2 *Practice of Medicine* module, and one coordinator supports the I-1 and I-2 *Focused Individual Research Experience module.*
  - One assistant director and five coordinators handle respective clerkships in the third and fourth years.
  - These individuals are responsible for all of the administrative details associated with the clerkships: orientation, educational activities, student schedules, examinations, OSCEs, and final evaluation.
- The Clinical Skills and Simulation Center has a budget provided through the Office of Faculty and Academic Affairs for equipping the facilities and for its operation. This budget includes funds for the hiring, training and use of standardized patients within the P-1 and P-2 *Practice of Medicine* modules and within the core clerkships.
- The Offices of Assessment, Knowledge Management, Library, Systems Engineering, and Educational Technology are part of the Office of Faculty and Academic Affairs. Each provides support to faculty throughout the educational program.

LEARNING OUTCOMES

- Faculty members have characterized the core competencies of the graduates in six domains corresponding to competency domains described by the ACGME.
- At the time of graduation, it is expected that each graduate will have demonstrated competency in each of the 38 program learning objectives (Appendix A).

PROGRAM EVALUATION

- A comprehensive assessment plan has been created for the outcomes of the education program.
- The college's knowledge management system allows faculty to review the exam performance of students on various subject areas and objectives of the curriculum.
- Every module and clerkship is evaluated anonymously by the students in the first week after completion of the module. All core faculty members are also evaluated.
- The module/clerkship evaluation is reviewed by the director and faculty. The evaluation is also reviewed by a Subcommittee of the M.D. Program Curriculum Committee (Program Evaluation Subcommittee - PES). The module/clerkship director drafts a list of recommended changes based upon the evaluation and feedback and submits the proposed curricular changes to the PES. The PES reviews the changes and makes a final recommendation to the M.D. Program Curriculum Committee. The faculty evaluations by the students are reviewed by the individual faculty and the department chair.

STUDENT ASSESSMENT

- Both formative and summative student assessments are used within modules and clerkships.
- Many formative assessments are available as weekly on-line quizzes with student feedback provided.
- Summative assessment is primarily computer based using validated, sequestered question banks and comprehensive post-examination statistical review and validation.

- Each question in the question bank is tagged to allow analysis of exam results by primary disciplines, organ systems, and objectives.
- Individual clerkships have developed observed/objective formative and evaluative exercises.
- Core clinical skills, behaviors, and attitudes that students must demonstrate are included in each of the above clerkships objectives. The patient types and clinical conditions are monitored through OASIS and students review their progress with their clerkship director during their mid-clerkship evaluation.
- NBME shelf exams are a small portion (20 percent) of the final grade. Professionalism is assessed in each clerkship.
- Basic and advanced clinical skills are taught and assessed in two yearlong modules, Practice of Medicine 1 and 2 (P-1 and P-2), which occur in parallel and are contextually integrated with the standard pedagogic curriculum modules (HB-, C-, and S- courses).
  - The initial activities are generally addressed in small groups ranging from four to eight students and advanced activities occur in a one student-one standardized patient format. All assessments are in an individual format.
  - SP cases are developed by a core group of faculty and educational goals are pegged to the students' level. Assessment of student performance is generally through three modes:
    1. SP direct evaluation: Standardized patients complete a checklist that focuses on the performance of a particular history or exam item. These lists are generally 20 to 40 items in length per session.
    2. Direct supervision by clinical faculty.
    3. Post Encounter Note (PEN) evaluation: Students have the opportunity to construct a PEN on their SPs. These are evaluated either by the students themselves (low-stakes, formative) or by faculty (high-stakes, summative). The faculty has also contributed to two large-scale formative PEN sessions.
- Academic progression from M2 to M3 and from M3 to M4 is dependent on passing a final OSCE examination. In the case of failure, a remediation plan is developed following observation of the student's performance videos and, in conjunction with the student. Additional focused activities are scheduled and performance is re-evaluated.

MANAGEMENT OF ASSESSMENT

The management and implementation of educational assessment in the College of Medicine is a close collaboration between the Office of Assessment and the assistant deans of medical education, all within the Office of Faculty and Academic Affairs.

CLINICAL EDUCATION

PRE-CLERKSHIP CLINICAL EXPERIENCES

- The first two years of the curriculum are structured into modules, with the first year focusing on a fundamental understanding of how the various basic science disciplines relate to the normal human body.
- Each of these modules provide vertical integration of various disciplines (e.g., anatomy, physiology, histology, embryology, medical imaging, and neurobiology are taught in an integrated way) and horizontal integration of clinical sciences through the use of clinical cases and vignettes to motivate and reinforce learning.

- The M1 curriculum also includes the C-1 Psychosocial Issues in Healthcare module to provide students with an understanding of the role of psychosocial factors in illness and its treatment, and the P-1 Practice of Medicine module that provides students with interpersonal communication, physical examination and medical documentation skills.

- These doctoring skills are mastered with an emphasis on patient-focused, compassionate and professional behavior and are taught in the larger context of multicultural medicine, medical ethics, gender specific medicine and other related socioeconomic aspects. Included as part of the P-1 Practice of Medicine module, is a longitudinal Community of Practice experience that provides structured interaction with the Central Florida medical community with an emphasis on clinical as well as business aspects of medicine.

- P-2 Practice of Medicine module is a yearlong instructional module that builds on the basic skills that were emphasized during the first year.

- The students continue to develop physical examination and communication skills and further prepare for clinical problems in medicine, such as patient interaction, ethical and medico-socioeconomic issues, and skills necessary for effective communication.

- The Community of Practice component is continued in P-2 as students work with preceptors, expanding their experiences with clinical patients in a manner fully correlated with the M2 curriculum.

- At the end of the module, students focus on clinical problem solving and participate in a series of OSCEs developed to assess competency in clinical skills.

- By using simulated patients and standardized scenarios, the student's abilities are evaluated in an environment that is more realistic and at the same time allows for an evaluation that goes beyond diagnostic ability and memorization.

- Clinical skills such as communication, professionalism, body language, and decision making are assessed. The students are given immediate feedback on their performance by the standardized patient or evaluator.

CLERKSHIP EXPERIENCES

- M3 begins with a one-week orientation to the third year marked by a combination of relevant didactics (lectures, small-group discussions, resident panels) with a clinical inpatient experience that allows students to strengthen their proficiency in written and oral presentation skills through immediate peer and mentor feedback.

- Following this one-week orientation to the third year, students rotate through a set of required core clerkships in Internal and Family Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry, and Surgery. As part of the 12-week Surgery rotation, students have the opportunity to choose from a variety of surgical and other selective experiences (given as two 2-week sessions) in addition to eight weeks of General Surgery. The third year culminates with a one-week capstone experience.

- A Longitudinal Clerkship Curriculum complements the traditional clerkships required at the College of Medicine.

- Over the course of the third year, all students return to the College of Medicine for one afternoon every six weeks. In order to minimize conflict with clerkship schedules, sessions are planned every six weeks on Friday afternoons corresponding to the final Friday of six-week clerkships or the mid-point of the 12-week rotations. Each session is four hours in length and is developed by a team of clinicians and basic scientists.

- At the end of M3, the Capstone Week integrates knowledge attained during the clerkships and prepares students for their final year of medical school.

- Medical skills needed by fourth-year students include more advanced management of patients in the Critical Care, Emergency Medicine, and Acting Internship required rotations. Discharge planning including

psychosocial and cultural awareness is also addressed. Advanced pharmacology of the critically ill patient, including course material from anesthesia, cardiology, and emergency medicine, is reviewed. Patient safety and ethics issues are re-addressed with interactive sessions taking into consideration the students' perspectives after a year of intensive clinical experience.

- The *Capstone Week* also includes informational sessions on international medicine, including the appropriate roles of students at these sites and language skills and cultural competency when caring for patients outside of the United States.

- The fourth year is divided into 11 four-week blocks and is designed to serve as a translational year for students as they approach residency training.

- In order to facilitate this process, the M4 schedule requires completion of four specific rotations: Critical Care, Emergency Medicine, an Acting Internship in either Medicine or Surgery, and a second Acting Internship in one of the core clerkship specialties (Internal Medicine/Family Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry, and Surgery), as well as the Capstone Course at the end of the fourth year.

- The four required rotations in the areas listed above provide students experience with advanced clinical skills and more demanding clinical situations. Emergency Medicine and Critical Care also provide students with cognitive, procedural and communication skills training for a variety of clinical presentations.

- Of the remaining seven blocks, four are required as elective clinical experiences chosen by the student.

- The remaining three blocks of the fourth year are used for study, further research, residency interviews or other elective experiences.

- Students finish the fourth year with a capstone experience that provides preparation for internship and residency, including leadership training and teaching experience. This experience includes team training, standardized and virtual patient cases, further instruction in clinical teaching during residency, and small-group sessions focusing on medico legal, ethical, communication and professionalism issues.

- Emphasis on evidence-based medicine consists of journal clubs as well as structured exercises aimed at improving the students' ability to read, understand and appropriately apply high-quality resources to the management of patients they have encountered in the clinical setting. Personal finance and debt management are also included during the experience.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Traditional basic science disciplines are integrated into multidisciplinary learning modules.

- The two-year Practice of Medicine module combines medical history and physical examination with the tools of doctoring and community-based office visits. This module focuses on the evidence-based application of basic science principles to clinical care, and is integrated with the core basic science disciplines.

- The Focused Individualized Research Experience (FIRE) modules allow students to systematically review a question of their choosing. This may be either hypothesis-driven basic science research or an individual student-driven project in a field of particular interest.

- Longitudinal Curricular Themes are woven throughout the curriculum to provide students with instruction and experiences related to multicultural medicine, ethics, gender-based medicine, geriatrics and palliative care, medical informatics, nutrition, and patient safety.

- The Psychosocial Issues in Healthcare module provides students with an understanding of the role of psychosocial factors in illness and its treatment.

FACULTY

FACULTY RECRUITMENT

- The leadership of the College of Medicine has developed a hiring plan for the systematic hiring of faculty.

- Based on this plan, department chairs or directors recruit faculty to be members of the Departments of Medical Education or Clinical Sciences or the Burnett School of Biomedical Sciences (BSBS).

- Most faculty members in the Medical Education and Clinical Sciences departments are recruited as non-tenure-track faculty on multiyear contracts; most faculty members in BSBS are tenure track.

VALUING TEACHING

- Faculty members in the College of Medicine engage in a range of activities, which may include teaching, research, clinical expertise, academic leadership, service, and/or other activities.

- The activities support the academic mission of the college and thereby allow the promotion profile to reflect the unique combination of activities and accomplishments of each faculty member and may vary substantially from one faculty member to another.

- The academic mission of the college requires all faculty members to engage in scholarship and scholarly activity. Both of these characteristics require the dissemination and acceptance of new knowledge by one's peers.

- Aspects to the evaluation of faculty members for promotion include evidence of scholarship in teaching, e.g., peer-reviewed publications, classroom teaching, curriculum design, textbook authorship, mentorship, teaching awards, and invitations to speak at national conferences.

- At the university level, there are several faculty award programs each year as incentives for faculty members to continue developing and improving upon their professional skills, both in teaching and in research.

- The College of Medicine participates in these awards and has developed additional awards to recognize the efforts of regular and volunteer/affiliated faculty.

FACULTY DEVELOPMENT

- The College of Medicine faculty members are supported by the college Office of Faculty Development and multiple college and university department programs to advance their teaching and assessment skills. The primary aim of the college Office of Faculty Development is to help faculty members gain the basic teaching skills, access research resources, and provide opportunities to expand the clinical knowledge necessary to initiate or support curriculum development, and to further expand a faculty member's teaching, research, and clinical repertoire as the program matures.

- Programming within this office is administered both on an ad hoc basis and through a series of workshops. The ad hoc or personalized approach allows the faculty development professionals (and other medical education faculty members) to work with small groups of faculty members on devising learning objectives, developing appropriate content, identifying appropriate teaching methods, developing formative and summative assessments, and linking assessments to objectives. Workshops are scheduled to facilitate faculty members' understanding of innovative pedagogical techniques, learning theory, and educational technology resources.

- A series of focused orientations have been developed for preceptors in the *Practice of Medicine* modules, research mentors in the *Focused Individualized Research Experience* modules and volunteer faculty participating in the anatomy lab as part of the *Human Body: Structure and Function* module.

- In preparation for clerkships, a "Resident as Teacher" series was designed and implemented in 2010-2011 and a revised series was delivered in 2011-2012.

- Additional support and information is provided via regular, electronic communications (e.g., the *PEP talk* e-mail newsletter, *Community of Practice News* and other educational resources, including *Academic Medicine* articles forwarded to faculty), and online educational resources focused on writing student learning objectives, innovative teaching methods, item-writing, and clinical teaching resources.

- The college's Office of Faculty Development also collaborates with the Offices of Educational Technology and Assessment to coordinate and implement faculty development programs related to technology and assessment.

- Through the support of the personnel in the Office of Assessment, the Office of Educational Technology, and professional staff, there is significant support provided to assist faculty members in developing and delivering appropriate PowerPoint presentations, case-based materials, self-learning modules, web-based materials, and student assessments.

- The Office of Educational Technology operates a Faculty Collaboration Center where faculty members can obtain individualized instruction related to educational technology, as well as to collaborate with other faculty members and instructional designers to improve the material preparation and delivery of relevant content.

- The facility includes faculty access to computers, advanced software, advanced media hardware, instructional designers, and media designers.

- Each faculty member is provided $3,500 annually for professional development or continuing medical education.

- In addition, the Office of Faculty and Academic Affairs sponsors faculty members to attend professional meetings pertinent to their role (clerkship/module director) within the educational program. Clerkship Coordinators are also sponsored to attend such meetings.

- The University of Central Florida also has a vigorous program of faculty development that provides evidence of ongoing professional development of faculty as teachers, scholars, and practitioners.

- There are numerous faculty professional development programs currently offered to all faculty members at UCF that are available to College of Medicine faculty members.

- The following UCF departments, external to the College of Medicine, support professional development of College of Medicine faculty members.

  - The Karen L. Smith Faculty Center for Teaching and Learning (FCTL) supports faculty excellence in the traditional academic triumvirate of teaching, research, and service in order to maximize student learning and faculty success in teaching.

  - The FCTL fulfills its mission by sponsoring workshops, new faculty orientations, winter and summer faculty development conferences, course innovation programs, faculty observations, and support for the integration of effective and appropriate assessment at the course and program level.

  - An existing new faculty orientation, which has been proven to provide effective preparation for UCF teaching faculty, has been adapted to meet the needs of the faculty members at the college. All College of Medicine teaching faculty, residents, fellows, and graduate teaching assistants complete an orientation based on the existing UCF model. The FCTL orientation is comprised of face-to-face workshops, time for development, and support of faculty and staff with expertise in teaching and learning with technology.

  - The Office of Operational Excellence and Assessment Support partners with the FCTL to support faculty in the development of program level student learning objectives and the assessment of these objectives to provide evidence of student learning. The relationship of course student learning objectives and program student learning objectives is emphasized.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

– The Institute for Simulation and Training (IST) is a multidisciplinary center that focuses on research and development related to the application of advanced modeling and simulation technologies to education and training.

– The Center for Distributed Learning has developed a nationally recognized faculty development program that provides numerous opportunities for UCF faculty members, graduate teaching assistants, and associates to further develop their skills in the area of online instruction. The program involves seminars, coursework, activities, labs, and special presentations.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The college has a large and effective volunteer and affiliated faculty group.

- Volunteer and affiliated faculty appointments (N=1,600) in the college are unpaid (by the college) appointments that do not provide tenure or tenure-earning status.

- Affiliated faculty members are employed by an affiliated institution that specifies a certain portion of the faculty member's time under that contract to be committed to medical education under the supervision of the college.

- All volunteer and affiliated faculty members must comply with the policies and procedures of the college and university, and also with any local, state, and federal laws and regulations.

- Residents associated with the M.D. program are appointed as resident instructors to provide them with access to the Harriet F. Ginsburg Health Sciences Library.

MOST PROUD OF TO DATE

- College Location in Emerging Lake Nona Medical City: The establishment of the College of Medicine and the UCF Health Sciences Campus at Lake Nona catalyzed the development of a new Medical City. This is unique among emerging medical schools in the United States and provides a greenfield of opportunities for the new missions of the college and the Lake Nona partners. The resulting Medical City is expected to generate $7.6 billion in annual economic impact by the end of 2017, and creates great potential for the future of the college.

- Strong Biomedical Science Research Foundation: The incorporation of the Burnett School of Biomedical Sciences into the College of Medicine at the outset not only provided additional educational resources, but created a viable biomedical sciences research foundation for the college. Having established biomedical researchers as active faculty members in the college is a strength and advantage uncommon to new medical schools.

- Extensive Community Support: The level of support provided by the political, business, and research communities, the general public in Central Florida, the state of Florida government, and the university represents a potent strength for the College of Medicine. Additionally, the commitment of clinical affiliates to support clinical education without explicit reimbursement, the community's support to fund the construction of the medical education building and pay for student scholarships, the state's commitment to providing full funding for the M.D. program despite the economic downturn, and the university's recent purchase of land for a teaching hospital have created a stable funding structure that is sufficient to support the medical education program today and beyond.

- Rich Clinical Environment: The existing clinical affiliations with major healthcare systems have provided a rich environment for effective clinical education. The major clinical partnerships with Orlando Health, Florida Hospital, Nemours Children's Hospital, the Orlando VA Medical Center and other affiliated hospitals and facilities provide an effective learning environment in the third and fourth years of the curriculum that includes residents on most rotations. These collaborations provide a framework for expansion of the relationships to include new initiatives in clinical and translational research.

- State-of-the-art Facilities: The college's physical facilities were designed for delivery of an integrated curriculum with the use of multiple instructional modalities to establish an outstanding learning environment for medical education.

- Outstanding Central Management and Support of the Curriculum: The curriculum is designed and managed centrally by an effective M.D. Program Curriculum Committee structure, supported by three multidisciplinary departments. This structure creates a vital environment for curriculum improvement and innovation. The curriculum is designed using student learning objectives linked at the session, module, and program levels. A comprehensive knowledge management system links every examination question to learning objectives and provides a unique and robust capability for assessing and guiding individual student learning as well as assessing and improving the curriculum and its delivery.

- Strong Focus on the Individual Student: The strong personal interaction among experienced student affairs staff members and students, the use of multiple mentors (academic, research, career) for individual students, and the accessibility of faculty members to individual students fosters a culture and environment that promotes professionalism, independence, individual commitment, and responsibility.

- Collaborative Faculty: A strong culture of collaboration has been fostered by a team-based approach to integrated curriculum development and delivery, the absence of disciplinary silos, and the increasing use of faculty development programs to empower research and teaching collaboration.

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MISSION AND VISION FOR THE NEW SCHOOL

The Central Michigan University (CMU) College of Medicine (CMED) will prepare physicians focused on improving access to high-quality health care in Michigan with an emphasis on rural and medically underserved regions. Our graduates will aspire to excellence in providing patient-centered and evidence-based care to their patients and communities. We will engage physicians in leading healthcare transformation, lifelong learning, and team-based education.

- The CMU College of Medicine mission and goals were first developed during strategic planning stages. This strategic planning effort, carried out with representation by CMED stakeholders, was an initial priority of the founding dean.
- Strategic planning is linked to performance outcome measures that will be assessed annually, and planning will continue throughout CMED's development.
- The CMED has entered into facilitated discussions and planning retreats to develop its operational and organizational strategy for both campuses. This work began in the spring of 2011 and will continue as a priority throughout the college's early development and ongoing assessment.
- Going forward, institutional priorities and goals will be set by the founding dean in consultation with the Dean's Cabinet, which is comprised of the CMED leadership team, and with input from faculty through the Dean's Advisory Council.
- Depending on the matter being reviewed, priorities may also be discussed and reviewed with the provost, the Council of Deans, the president, the president's cabinet, and either the Board of Trustees or the board's advisory committee.
- The mission and vision for the CMED guide the development and planning for the organization and are regularly reviewed, discussed, and revised as appropriate.

### RELATIONSHIP TO THE PARENT UNIVERSITY

- Central Michigan University's journey into medical education began in late 2006 when the university became engaged in conversations with local physicians, medical societies, and community leaders about the looming shortage of physicians in Michigan, with particular focus on the mid-Michigan region.
- A number of articles and reports published at that time highlighted an impending national shortage of physicians, which led to discussions among the CMU Board and senior leadership about how CMU might position itself to meet these needs.
- Interest in the community was high, particularly among local physicians, and advice was sought from other new medical schools as well as from the Liaison Committee on Medical Education (LCME) to explore the process of establishing a new program.
- Over the next several years, CMU continued to collaborate with the region's medical community to plan the development of a medical education program. Internal committees composed of faculty, staff and administration, groups of community physicians and business leaders, and external consultants helped the plan take shape.
- The result was a vision for a College of Medicine that would leverage the university's existing resources in the life sciences to address the projected shortage of medical professionals in Michigan.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- Governance of the curriculum resides with the Curriculum Committee. This committee is responsible for defining overall program goals and objectives, as well as overseeing and approving the objectives, assessments, structure, and content of the undergraduate medical curriculum, including both pre-clinical courses and clerkships.
- The committee is also charged with approving the creation or removal of courses from the educational program and formulating educational policies.
- Members of the Curriculum Committee include the associate dean for student affairs, a medical librarian, four appointed students (one each from Years 1 through 4,), two resident physicians, the curriculum directors for each year of the program, and three elected members of the faculty.
- Two representative course directors and two representative clerkship directors will be appointed to the Curriculum Committee.
- The committee has several ex officio members including the director of faculty educator development, the senior associate dean for educational programs and accreditation, and the knowledge management officer.
- Through the Program Evaluation Subcommittee, the Curriculum Committee is responsible for conducting regular reviews of courses and clerkship as well as the overall educational program.
- The Curriculum Committee has overall responsibility for the curriculum and reports to the dean through the associate dean for medical education.
- The associate dean for medical education serves as chair of the Curriculum Committee.
- The Year 1-2 and Year 3-4 committees are responsible for following the guidelines of the Curriculum Committee to define and revise the objectives, assessments, structure, and content of the undergraduate medical curriculum for the courses/clerkships delivered during those years.

- The year committees are each chaired by the relevant year director. These committees report to the Curriculum Committee with a secondary reporting relationship to the associate dean for medical education. All course directors are members of the Year 1-2 Committee, and all clerkship directors are members of the Year 3-4 Committee.

- The Year 1-2 Committee is composed of course co-directors and representative faculty for all courses in Years 1 and 2. This committee is responsible for the planning and implementation of the Curriculum Committee recommendations regarding this phase of the educational program.

- The Year 3-4 Committee is composed of all the clerkship directors, representative faculty, and a director of the elective programs. This committee is responsible for planning and implementation of the Curriculum Committee recommendations regarding this phase of the educational program.

- Two standing subcommittees of the Curriculum Committee are the Program Evaluation and Student Assessment Subcommittees.

- The charge for the Program Evaluation Subcommittee is to systematically review the curriculum, all courses, clerkships, and electives.

- The Student Assessment Subcommittee will oversee the design, implementation, and analysis of meaningful assessment strategies.

- The Student Assessment Committee will be responsible for insuring that in-course and institutional assessments are timely, effective, and efficient measures of the progress and growth of individual students at key stages of undergraduate medical education.
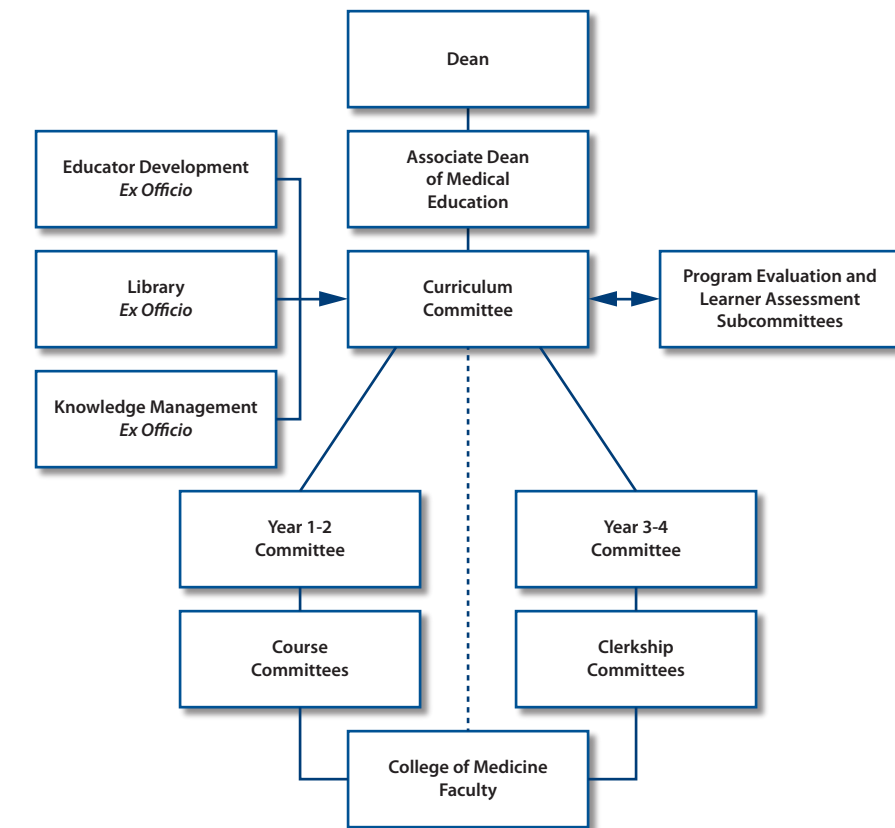
SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- The Office of Education is responsible for supporting the development, implementation, and evaluation of the undergraduate curriculum and for overseeing the assessment of student performance and faculty educator development.

- The office currently consists of the associate dean of medical education (director of the office), the senior associate dean for educational programs and accreditation, an instructional developer, a standardized patient director, and two full-time administrative support staffers. When the office is fully staffed it will also include individuals with expertise in learner assessment, program evaluation, and curriculum support.

FINANCIAL MANAGEMENT OF THE EDUCATIONAL PROGRAM

- The College of Medicine startup is supported by the university and through philanthropy efforts.

- Longer term, the college will be supported by tuition, philanthropy, clinical, research, and university revenues.

- The college is currently developing its accounting and budget systems to develop a separate budget for educational programs.

LEARNING OUTCOMES/COMPETENCIES

- The college of medicine has categorized the outcomes of the graduates into seven domains, the ACGME competencies and a competency specifically related to our mission, Population and Community Health. Thirty educational program outcomes were written and associated with these seven domains.

STUDENT ASSESSMENT

- The educational program features both formative and summative assessments in all courses and clerkships.
- Integrated assessments will occur at the end of each course. These assessments will focus on both course specific and institutional competencies.
- Narrative assessments will be utilized in assessing student's knowledge, behaviors, and attitudes in multiple small-group encounters.
- Peer feedback and interprofessional/team assessments will also be featured. Although grading will be pass/fail, there will be opportunities to demonstrate excellence.

CLINICAL EDUCATION

- An important organizing principle of the Central Michigan University College of Medicine is providing educational experiences that are contextually relevant and designed to meet the healthcare needs of the underserved rural, remote, and urban populations we serve.
- CMU is a community-engaged medical school and uses the patient-centered medical home as the preferred model of medical practice. Thus, clinical experiences are designed to provide students early and longitudinal opportunities to practice the clinical skills associated with a patient-centered communication, hypothesis driven physical examination and the opportunity to become keen observers of the broader patient care context.
- In the first two years of the curriculum students will spend one half-day per week in a physician practice in the Initial Clinical Experience (ICE). The ICE serves as the "living laboratory" where students through a series of guided individual tasks will apply and integrate the concepts and content of three longitudinal courses: 1) the Essentials of Clinical Skills, 2) The Art of Medicine, and 3) Society and Community Medicine.
- The community-engaged, longitudinal patient-centered model is further developed in the Year 3 Integrated Longitudinal Clerkship.

LONGITUDINAL INTEGRATED CLERKSHIP – THE CMED MODEL

The term Longitudinal Integrated Clerkship, [the Comprehensive Community Clerkship (CCC)] refers to a model of clinical education and training for medical students that occurs in the third or fourth year of medical school.

- At CMED the CCC will occur in the third year.
- The key features of the CCC are objectives based; major clinical specialties and their objectives are learned in parallel, rather than in separate "silos"; usually 32 weeks in duration; students are based in primary care practices but learn all specialties; assessment of content, knowledge, clinical skills and performance is accomplished using a variety of methods, including written examinations, clinical observation and feedback, and objective structured clinical examinations (OSCEs).
- The CCC at CMED is an eight-month (32-week) clinical experience based in a large rural or small urban community in central or northern Michigan.
- The CCC occurs immediately following the second year of the medical school curriculum and students are based in primary care practices in groups of two as an immersion experience. That is, students live in and experience the communities to which they are assigned.

- Rather than learning the major specialties of medicine in separate rotations, the learning experience is integrated in that the specialties are learned in parallel based on the practices in which the student is located.
- The CCC is based upon specific learning objectives from each of the major specialties and disciplines including obstetrics, gynecology, surgery, psychiatry, pediatrics, and radiology.
- During the CCC students will be assigned to a single primary care provider (usually a family physician) and will have a panel of patients sharing in the provision of care of both acute and chronic conditions over the course of the clerkship.
- Students are expected to follow patients that they have seen in the primary practice as they are referred to other specialists for further care. This provides students with an opportunity to follow the course of a patient's illness and to understand the context in which the patient lives in the community. This continuity of care opportunity is not often or easily afforded in a tertiary care facility.
- In addition to the CCC, students will be required to complete rotations in Obstetrics/Gynecology, General Surgery, Hospitalist, In-Patient Internal Medicine, Psychiatry, and Emergency Medicine. They will also be required to take four weeks each of a Medicine and a Surgery selective. Students will have 20 weeks of electives.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Curriculum designed through integrating the foundational and clinical sciences
- Early community-based clinical experiences
- Patient- and community-centered focus
- Eight-month required longitudinal, community-based, third-year clerkship

FACULTY

FACULTY RECRUITMENT

- The college has formed search committees for recruitment of faculty (foundation sciences, medical sciences, and surgical sciences), deans, and professional staff.
- Faculty are recruited through the formal, standard, Central Michigan University process. The process includes approval of positions, development of role descriptions, creation of ads which are posted in educational and professional journals and websites, review of applications, screening-telephonic interviews, and campus visits.
- As a new, preliminarily accredited medical school, attracting faculty can be both a challenge and an opportunity. The challenge is sorting through the large group of applicants to identify those with the skills and the attitudinal fit for the program and values.
- Given the focus of the college and the existing infrastructure, attracting successful researchers is a challenge. Having a community-based, integrated curriculum focus, not all faculty skills match with the curriculum model.
- Traditional approaches for promotion and tenure are not necessarily adapted to the model.
- It is particularly challenging for a new school to recruit individuals to produce revenue (clinical, research) to support the educational mission. The opportunity lies in building a new medical school culture and bringing on board innovative faculty with a passion for the mission and for medical education.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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VALUING TEACHING

- Education is a key focus of the mission for CMU College of Medicine.
- Both CMU and the College of Medicine have a system of faculty educator development in place.
- Within the College of Medicine, teaching excellence is a major factor in promotion and tenure.
- Remuneration for faculty teaching is based on effort allocation and performance. Incentives and salary increases are based upon quality.
- Faculty have dedicated time for teaching and educational activities through the effort allocation model. Educational scholarship is a focus for the college.

FACULTY DEVELOPMENT INITIATIVES

- Central Michigan University has had a long tradition of and a strong commitment to faculty development.
- The Faculty Center for Innovative Teaching (FaCIT) serves all faculty at CMU by delivering one-on-one tutorials and project development sessions, workshops, seminars and webinars to small and large groups. The center manages new faculty orientation and a new faculty seminar series devoted to improving teaching skills and pedagogy.
- FaCIT holds an annual conference on Teaching and Learning and hosts a website with up-to-date print and video resources and offering assistance (money and development) for faculty who wish to pursue Scholarship of Teaching and Learning (SoTL) research. The FaCIT Staff skills include instructional design, graphics, web design and educational technologies.
- To supplement these existing activities, the College of Medicine is creating a Medical Educator Development and Scholarship (MEDS) program.
- Under the leadership of an assistant dean for faculty development and the director of faculty educator development, this program will conduct ongoing faculty educator orientation for all new faculty hires, provide course directors with support for course development and learner assessment, establish the core educator training for all course directors, establish programs for community-based physicians, develop joint offerings with CMU's FaCIT program, provide preceptor training for Year 1 and 2 preceptors, offer monthly educational scholarship journal clubs, and initiate an educational scholarship program.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- A major success has been the ability to build an administrative and faculty team with a shared commitment to the mission, vision, and values of the College of Medicine.
- As a result of that commitment and the interdisciplinary focus, designing a community-based, integrated curriculum has been successful.
- In preparing for accreditation, holding a mock LCME visit with experienced "new schools" leaders helped prepare faculty and administrators on the campus for the process.
- University and Community Support: CMU leadership is committed to the development of CMED as evidenced by its resource allocation and commitments, including facility and financial support and contribution of in-kind services.
- Throughout its development, CMED has received extremely strong support from university leadership as well as from the CMU community and region.

- Leadership and faculty from CMU's other colleges have expressed excitement concerning the collaborative opportunities that are expected to develop between colleges and CMED.
- There has been extensive involvement of stakeholders, which has continued throughout the development process and ensures that implementation of the medical education program progresses smoothly.
- Leadership and Experience: When CMU embarked upon developing a medical school, university leadership made the recruitment of an experienced administrative team a high priority.
- The CMED leadership team has extensive experience with both established and developing medical schools as well as multicampus models.
- The combined leadership team has well over 200 years of experience in academic medicine: four members with more than 30 years of experience and four others with more than 20 years of experience.
- Four members of the leadership team have experience with education delivery across multiple campuses, including the development and implementation of a new medical school having this multicampus and curricular model.
- CMED leadership has deep experience in clinical practice development and management. Team members have extensive experience in research conduct and administration at leading universities.
- Leadership team members have been active participants in the self-study process, leading committees and contributing to its review and feedback.
- Graduate Medical Education: CMED faculty, through CMU Medical Education Partners, has long-standing experience with graduate medical education.
- Faculty and residents associated with CMU Partners are experienced in teaching and supervising medical students, as a consequence of Partners faculty's past role in providing clinical teaching sites for undergraduate medical education. In addition, members of the CMED leadership team have extensive experience managing GME programs.
- Educational Experience: The CMED leadership team has extensive educational experience with both developing and established medical schools across the basic science and clinical disciplines. In particular, three team members hold doctoral degrees in instructional technology and have led the curriculum design process.
- Associate deans have extensive expertise in curriculum design, development, and delivery, as well as program evaluation in a multicampus system.
- Faculty hired to date are seasoned university instructors who have years of experience in teaching and assessing student knowledge. These faculty members have experience in curricular development, course/clerkship design, student assessment, instructional delivery, and program evaluation.
- Admissions: In fulfillment of its mission, CMED has designed an admissions process that incorporates principles of two evidence-based practices—holistic admissions and MMI—to identify applicants with the skills and aptitude to become successful physicians.
- The selection process has been specifically designed to identify students whose attributes are consistent with the mission of the CMED.
- Diversity Programs: CMU has strong diversity programs that engage various communities and populations. CMED will build its student diversity via pipeline programs and other activities by leveraging CMU's resources.
- Planning is under way to expand programs already in existence to include activities that emphasize health careers.

A Snapshot of the New and Developing
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AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

- Clinical Faculty: CMU Partners is a partnership between CMU and Covenant Healthcare and St. Mary's of Michigan and provides many strengths. CMU Partners has served as a clinical training site for more than 40 years in both undergraduate and graduate medical education.

- There is an existing body of clinical faculty representing a broad base of clinical practice and specialty training and extensive experience in managing residency programs.

- CMU Faculty: CMU has a proud 120-year history of education. There is an existing cadre of basic science and inter professional faculty, which have been active participants in the planning process and have joint appointments in CMED.

- University Financial Strength: CMU is a well-managed university with significant resources, a bond rating of Aa3/A+, and $228 million in unrestricted net assets. The university has committed to providing base funding to the CMED to ensure its successful implementation and continued operations.

- Facilities: The College of Medicine building is completed and occupied over 18 months prior to matriculation of the charter class. It was designed to support the CMED curriculum and includes state-of-the-art technology to facilitate the delivery of the curriculum across both campuses. It also includes a variety of study spaces and lounge space.

- The close proximity to the College of Health Professions Building will facilitate inter- professional activity in the education and research domains. CMU and the College of Medicine are currently planning for additional educational facilities in Saginaw, the home of CMU Partners.

LESSONS LEARNED:

- Overall Management: It is critical to have individuals with the right expertise involved in the initial planning.

- Overall project management requires at least one leader who has been part of a "new medical school" leadership team. In addition, team-building is key although due to the time demands of LCME accreditation and program development, it is very difficult to find time for such formal team-building.

- In the future, making this a priority is crucial to ongoing effective team functioning.

- Clearly, the dean has an important role to play in many venues. One of those roles is in the selection of these key team members. The dean needs to be on board for all those searches.

- Facilities: It would be preferable to have the educational program well designed to plan the facility correctly.

- Faculty Selection and Development: In developing and implementing a new curriculum, any College of Medicine needs to find faculty with expertise and interest in their model and then develop a faculty education program to ensure that faculty are prepared for their instructional roles.

- To deliver an integrated active-learning curriculum successfully, substantial faculty education is required.

- The program can leverage existing CMU faculty education resources, but additional time, effort and expertise is required to ensure that faculty are prepared to successfully develop and deliver the curriculum.

- Anticipating this need and planning resources accordingly is critical. In addition, developing the effort and compensation model to fit our program and faculty is challenging and new models should be explored.

- Faculty Group Practice Development: One of CMED's goals is to address the physician shortage in the surrounding communities and region. Given this shortage, our self-study identified the recruitment of clinical faculty into the planned group practice as a challenge.

- An effort that has been successful in the clinical domain is a targeted communication strategy using social networking, alumni contacts, and other means to inform and encourage clinicians with ties to the area to return. Additionally, graduates of the CMU Partner residency programs are being recruited into the faculty group practice.

MOST PROUD OF TO DATE

- Our mission, vision, and strategic plan
- Evidence-based educational program design and interdisciplinary process
- Patient-centered curriculum
- Merger with our clinical partners in Saginaw
- Engagement of our community
- Support of the university and community partners

Oakland University William Beaumont School of Medicine
Rochester, Michigan

Robert Folberg, M.D.
Founding Dean

Robert Noiva, Ph.D.
Associate Dean for Medical Education

Linda Gillum, Ph.D.
Associate Dean for Academic and Faculty Affairs

MISSION AND VISION FOR THE NEW SCHOOL

The Oakland University William Beaumont School of Medicine is a collaborative, diverse, inclusive, and technologically advanced learning community, dedicated to enabling students to become skillful, ethical, and compassionate physicians, inquisitive scientists who are invested in the scholarship of discovery, and dynamic and effective medical educators.

COMMENTS

When the Oakland University William Beaumont School of Medicine was being formed, a physician leader at the Beaumont Health System challenged us with a question: "How does one train a physician to be kind?"

The work of building the culture of the new Oakland University William Beaumont School of Medicine is our response to this important question. We understand the opportunity: it is easier to create a new culture than to change an existing culture. Our school brings many innovations to medical education. We consider our culture to be our most significant innovation.

In the years to come, we, the school's founders, will no longer be here. The culture of the school that we establish today, however, can be transmitted—one generation of faculty and staff to another, and one generation of students to another. The culture that we establish today may influence the practice of medicine by everyone who will ever attend our school. Therefore, our culture can influence the life of every patient who will ever be seen by our students.

We aspire to facilitate the growth of a medical student into a physician who achieves at levels that surpass competency, who is compassionate, who listens with focused intensity, and who communicates clearly with elevated cultural awareness. We expect our graduates who become scientists and clinician-scientists to understand that the endpoint of every experiment is a patient awaiting an answer.

We recruit staff, faculty and leadership on the basis of talent and emotional intelligence. We admit medical students through a parallel process—through holistic review. We take it for granted that our students are gifted academically. We select students who are passionate about scholarship and service and who are attracted to the affirmative and humanistic culture of the Oakland University William Beaumont School of Medicine.

In our Diversity and Inclusion logo, the capital letter "I" links Diversity and Inclusion to remind us that everyone at Oakland University William Beaumont School of Medicine is responsible for sustaining and promoting our culture.

"Everyone should believe that I - I personally - am responsible for a culture that values diversity as a strategy for achieving excellence and culture that embraces everyone in our medical school community."

The Oakland University William Beaumont School of Medicine is a community, driven by its mission statement and visions "in promoting, maintaining, and restoring health to individuals and communities served by the school and its graduates." We actualize our mission and work toward fulfilling our vision through a thoughtful planned process and growing commitment to community engagement service. The official "address" for community engagement and service-learning activities at the Oakland University William Beaumont School of Medicine is called COMPASS, because a compass is a tool by which one finds direction and because this word is the first seven letter of the word "compassion".

RELATIONSHIP TO THE PARENT UNIVERSITY

- The Oakland University William Beaumont School of Medicine is a privately funded academic unit of Oakland University, a public research university.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The dean has delegated responsibility for curriculum management (chief academic officer) to the associate dean for medical education.
- The Curriculum Committee reports to the associate dean for medical education. Four subcommittees report to the Curriculum Committee:
  - Curriculum Evaluation Subcommittee.
  - Curriculum Integration Subcommittee.
  - M1/M2 Curriculum Subcommittee.
  - M3/M4 Curriculum Subcommittee.
- Three individuals with portfolios related to curriculum management, report to the associate dean for medical education and provide a resource to the Curriculum Committee and to its subcommittees:
  - Curriculum program administrator
  - Director of student assessment
  - Director of curriculum evaluation
- The OUWB School of Medicine has four professional administrative medical education staff members who report to the associate dean for medical education and provide support to the Curriculum Committee and course and clerkship directors. These medical education professionals are responsible for the development, implementation and assessment of activities that thread through the curriculum and/or co-curricular activities. These professional support staff members include:
  - Director of clinical skills training and simulation center
  - Director of research training
  - Director of service learning
  - Director of education training

- The OUWB School of Medicine has additional medical education professional support staff members who report to the curriculum program administrator and associate dean for medical education, and provide support to the Curriculum Committee and its subcommittees and course and clerkship directors. These professional support staff members include:
  - M1 course coordinator
  - M2 course coordinator
  - M3/M4 course coordinator
  - Art and practice of medicine course coordinator
  - Longitudinal course (Medical Humanities and Clinical Bioethics and the Promotion and Maintenance of Health) coordinator
  - Capstone program coordinator
- Other associate and assistant deans report to the dean and are available to the Curriculum Committee and its subcommittees to provide information input, and analysis, and to take action if indicated.
  - The associate dean for undergraduate clinical education is responsible for all clinical clerkships and assists the M3/M4 Subcommittee of the Curriculum Committee.
  - The associate dean for academic and faculty affairs, together with assistant dean for continuing medical education, develop and implement faculty development programs to ensure that every faculty member is prepared to instruct and assess medical students.
  - The associate dean for graduate medical education is responsible for coordinating and evaluating the preparedness of residents and fellows to instruct and assess medical students.
  - The associate dean for education informational technology is responsible, among other assigned duties, for providing an information technology infrastructure for curriculum management and evaluation and is available to the Curriculum Committee and its subcommittees for their activities.
- The Curriculum Committee has the primary responsibility for the planning, oversight and evaluation of the curriculum. The Committee reports to the associate dean for medical education. Additionally, four curriculum subcommittees report to the Curriculum Committee:
  - Curriculum Evaluation Subcommittee
  - Curriculum Integration Subcommittee
  - M1/M2 Curriculum Subcommittee
  - M3/M4 Curriculum Subcommittee
- Ad Hoc Committees and task forces may be constituted by the Curriculum Committee to make reports and recommendations to the Curriculum Committee. Upon approval by the Curriculum Committee, these reports and recommendations are transmitted to the associate dean for medical education.
- Any member of the Medical School community may submit written proposals for curricular innovation, requests for changes in policies, or other business to the Curriculum Committee for review. The Curriculum Committee meets monthly.
  - There are 12 voting members of the Curriculum Committee from the faculty.
  - Chair of the Curriculum Committee
  - Vice chair of the Curriculum Committee
  - Chair of the M1/M2 Curriculum Subcommittee
  - Chair of the M3/M4 Curriculum Subcommittee

  - Chair of the Curriculum Integration Subcommittee
  - Chair of the Curriculum Evaluation Subcommittee
  - One pre-clinical course director
  - One clerkship director
  - Four at-large School of Medicine faculty members
  - Four nonvoting medical student members, one elected by the students of each class
- The following individuals are nonvoting ex officio members of the Curriculum Committee:
  - Dean of the School of Medicine
  - Associate dean for academic and faculty affairs
  - Associate dean for medical education
  - Associate dean for undergraduate clinical education
  - Associate dean for educational informational technology
  - Associate dean for student affairs
  - Director of the Medical School Library
- The M1/M2 Curriculum Subcommittee reviews and advises the Curriculum Committee and, ultimately, the associate dean for medical education and the dean of the School of Medicine on curriculum for the M1 and M2 years.
- The M1/M2 Curriculum Subcommittee is charged with review of each M1 and M2 course's or unit's instructional strategies/formats; consideration of potential revisions to a preclinical course or unit's goals and objectives; and ensuring coordination and integration all M1 and M2 courses.
- Membership: The committee includes directors of the pre-clinical courses; three faculty members at large, appointed by the associate dean for medical education; a chair, appointed by the dean of the School of Medicine; and four non-voting medical student members, one elected by the students of each class.

The following individuals are nonvoting ex officio members of the subcommittee:

  - Associate dean for medical education
  - Associate dean for undergraduate clinical education
  - Associate dean for educational informational technology
- The M3/M4 Curriculum Subcommittee reviews and advises the Curriculum Committee and, ultimately, the associate dean for medical education and the dean of the School of Medicine on curriculum for the M3 and M4 years and the review of clerkships.
  - The M3/M4 Curriculum Subcommittee is charged with review of each required clinical clerkship's instructional strategies/formats; consideration of potential revisions to a clerkship's goals and objectives; and ensuring coordination and integration all the clinical clerkships.

Membership: The committee includes each required clerkship director (Internal Medicine, Surgery, Pediatrics, Family Medicine, Psychiatry, OB/GYN, Anesthesiology and Pain Medicine, Emergency Medicine, Neurology and Special Senses, and Diagnostic Medicine).

- Three faculty members at large appointed by the associate dean for medical education
- A chair, appointed by the dean of the School of Medicine

- Four non-voting medical student members, one elected by the students of each class.
- The following individuals are nonvoting ex officio members of the subcommittee:
  – Associate dean for medical education
  – Associate dean for undergraduate clinical education
  – Associate dean for educational informational technology
- The Curriculum Integration Subcommittee reviews and advises the Curriculum Committee and, ultimately, the associate dean for medical education and the dean of the School of Medicine on the entire four-year undergraduate medical curriculum as a continuum, specifically addressing integration between basic sciences and the clinical sciences.
- Membership: The committee includes:
- 10 faculty members at large, five from the pre-clinical year disciplines, and five from the clinical disciplines, appointed by the Associate Dean for Academic and Faculty Affairs
- Four nonvoting medical student members, one elected by the students of each class
- A chair, appointed by the dean of the School of Medicine
- The following individuals are non-voting ex officio members of the subcommittee:
- Associate dean for medical education
- Associate dean for undergraduate clinical education
- Associate dean for educational informational technology

The Curriculum Evaluation Subcommittee reviews the instructional outcomes in terms of student and faculty performance.

Faculty performance is reviewed in part by analyzing data from course and clerkship evaluations that are forwarded to the associate dean for medical education.

Cumulative student performance data are reviewed in part by evaluating course and clerkship grade distributions, scores for gateway OSCEs, and performance on NBME subject examinations and Steps 1 and 2 of the USMLE.

Eventually, this subcommittee will review the results of the AAMC graduation survey.

- Membership: The subcommittee members include three faculty members from pre-clinical disciplines, excluding course directors, appointed by the associate dean for medical education
- Three faculty members from clinical disciplines, excluding clerkship directors, appointed by the associate dean for medical education
- One pre-clinical course director, appointed by the associate dean for medical education
- One clerkship director, appointed by the associate dean for medical education
- Four non-voting medical student members, one elected by the students of each class
- The following individuals are non-voting ex officio members of the subcommittee:
- The director of program evaluation
- Four medical students, one elected by the students of each class
- Associate dean for medical education

- Associate dean for undergraduate clinical education
- Associate dean for educational informational technology

An organizational chart is included below, depicting both the management and governance structure for the OUWB School of Medicine curriculum. This organizational chart identifies the reporting structure for the Curriculum Committee and its subcommittees, the medical education deans, and other medical education staff supporting management of the undergraduate medical education curriculum.
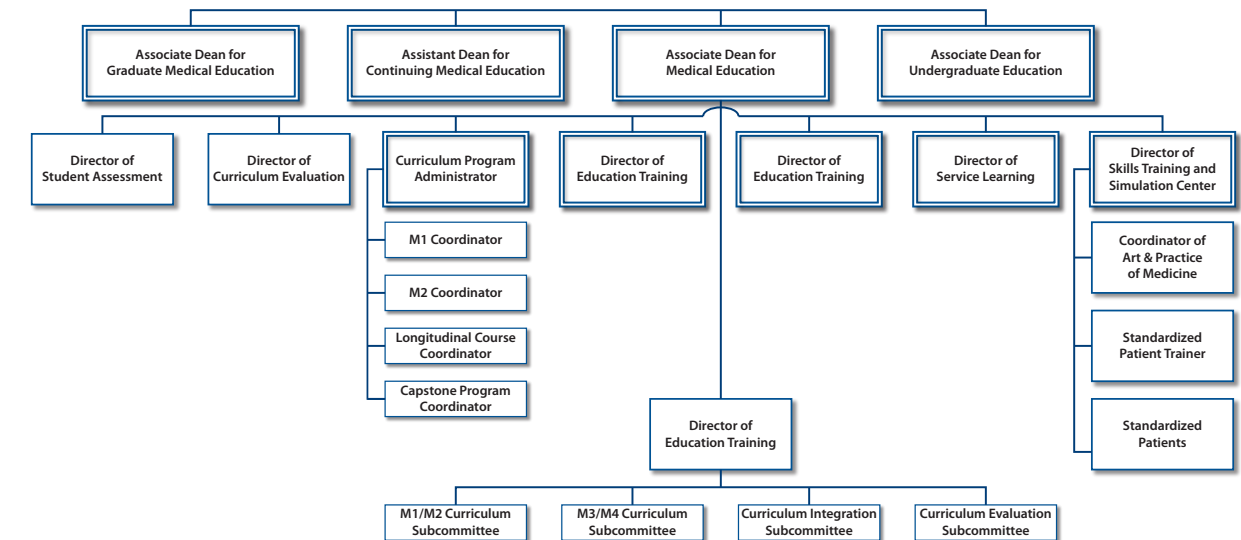
SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- Consistent with its culture, the OUWB School of Medicine has structured the administrative support of medical education without a formal Office of Medicine Education in order to minimize "siloing" and to promote the growth of an educational system that values and facilitates integration across the medical education continuum.
- The most important feature of the administrative support structure is the presence of four medical education deans (Medical Education, Undergraduate Clinical Education, Graduate Medical Education and Continuing Medical Education).
- These deans, with support from Oakland University, the OUWB School of Medicine, and the Beaumont Health System, ensure that the students and faculty receive a coordinated and consistent message regarding the mission, vision, and goals of the educational program.
- These medical education deans coordinate the curricular content, instructional and faculty resources, and instructional calendar without the challenges and limitations that might normally be encountered with a School of Medicine medical education office and individual clinical affiliate education offices.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

FINANCIAL MANAGEMENT

- The OUWB School of Medicine-employed medical education staff members provide faculty and students with a significant level of support and ensure faculty curriculum committees are provided with needed expertise in order to complete their assigned tasks.
- There is a separate budget to support education.

LEARNING OUTCOMES

- The OUWB School of Medicine has identified a set of curricular objectives and core competencies based on the core competencies outlined by the Accreditation Council for Graduate Medical Education (ACGME). See Appendix F.

PROGRAM EVALUATION

- Indicators that will be used by the OUWB School of Medicine to assess student attainment of desired learning outcomes and to evaluate the effectiveness of the educational program will include:

   Student scores on internally developed examinations

   – Student performance on OSCE-style examinations
   – Student noncognitive performance as assessed by teaching faculty
   – Student clinical performance as assessed by teaching faculty
   – Student scores on NBME customized and/or subject examinations
   – Students performance on United States Medical Licensure Examinations
   – NRMP match rates
   – Student responses on the AAMC Graduation questionnaire
   – Residency performance by graduates
   – Licensure rates of graduates
   – Specialty certification of graduates

STUDENT ASSESSMENT

- Medical knowledge in preclinical courses is assessed summatively using examinations produced internally and quizzes and externally produced assessments from the NBME.
- Most courses utilize weekly Team-Based Learning (TBL) sessions that provide opportunities for both formative and summative assessment. Students are assessed formatively using online web-based quizzes and problem sets.
- Most preclinical courses offer laboratory practical examinations to assess laboratory knowledge in Histology, Pathology, and Gross Anatomy.
- Many courses utilize papers and reflective writing for assessment.
- Clinical skills are assessed in the M1 and M2 years using OSCE-style examinations, most often with standardized patients.

- Preceptor physicians generate some assessment of clinical performance with actual patients in the hospital and ambulatory clinic setting using evaluation.
- All course directors are required to evaluate students for noncognitive attributes such as communication skills and professionalism. Although these evaluations may be factored into course grades, most preclinical courses use the information in these noncognitive evaluations solely as formative feedback for the students.
- Three comprehensive examinations are offered to assess medical knowledge in the preclinical years.
- An M1 year cumulative examination produced using the customized examination services of the National Board of Medical Examiners is offered at the end of the M1 year. This cumulative examination has content from all foundational courses, longitudinal courses and organ systems courses in the M1 year.
- Two comprehensive diagnostic examinations prepared by Kaplan are given the students in preparation for Step 1 of the United States Medical Licensure Examination at the end of the M2 year.
- One diagnostic comprehensive examination will be given immediately preceding the four-week dedicated USMLE Step 1 preparation period and another similar examination will be given at the end of that period.
- The USMLE Step 1 examination is considered to be a comprehensive gateway examination that must be successfully completed before a student is allowed to begin clinical training in the clerkships.
- Medical knowledge in clinical clerkships is assessed summatively using subject examinations produced by the National Board of Medical Examiners (when available).
- In cases where an NBME-produced subject examination is not available, such as for the Neurology clerkship, an internally produced examination will be substituted.
- Many clerkships will provide formative assessment activities using online web-based and written materials.
- Clinical skills in clerkships are assessed summatively using OSCE-style examinations and written evaluations by attending physicians.
- All clerkships require a mid-clerkship formative evaluation with written and face-to-face feedback to provide assessment of clinical skills and performance.
- All evaluations assess noncognitive attributes such as communication skills and professionalism.
- A single gateway multistation OSCE examination will be offered to assess clinical skills between the M3 and M4 years. Although this multistation OSCE is a high-stakes gateway assessment of student performance, it can also be considered a formative assessment opportunity as student deficiencies identified will be remediated.
- The USMLE Step 2CS and 2CK examinations are used as comprehensive gateway examinations that must be successfully completed before a student is allowed to graduate.

CLINICAL EDUCATION

ART AND PRACTICE OF MEDICINE LONGITUDINAL COURSE

- Simulation training—Clinical training using simulation with virtual patients, medical trainers, high and low fidelity medical simulators and standardized patients during the M1 and M2 years.
- Preceptorships in the hospital and ambulatory settings—Students precept in groups of two students with a single physician providing primary care in either the ambulatory or hospital setting during the M1 and M2 years.

- Interprofessional home visits—Students conduct longitudinal home visits with nursing students to chronically ill patients. These home visits provide practice for interviewing and communication skills and encourage students to consider the impact of the home setting in health care.

MEDICAL HUMANITIES AND CLINICAL BIOETHICS LONGITUDINAL COURSE

- Counseling and patient communications—Provides training and simulated experiences in patient communication and counseling using faculty and training resource of the School of and Education Human Service of Oakland University for M1 and M2 years.

SERVICE LEARNING

- Health fairs and outreach clinics—Students participate in School of Medicine-sponsored health fairs and outreach events requiring students to utilize skills developed in the Art and Practice of Medicine course during their preclinical curriculum.

CORE REQUIRED CLERKSHIPS

- Students are required to complete 12 core clerkships in the M3 and M4 years—Internal Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Psychiatry, Family Medicine I and II, Emergency Medicine, Neurology, Anesthesiology and Pain Medicine, Ophthalmology, and Diagnostic Medicine (Lab Medicine and Radiology).

ELECTIVE CLERKSHIPS

- More than 46 elective clerkships are offered in the Beaumont Health System.
- Students have the ability to undertake elective clerkships at other medical schools if they so desire.
- The School of Medicine has affiliation agreements with three medical schools outside of the United States: Emek Medical Center in Afula, Israel, an affiliate of The Technion (Haifa, Israel), The Hadassah-Hebrew University Medical School (Jerusalem, Israel), and Yonsei University College of Medicine - Severance Hospital (Seoul, Korea).
- A memorandum of understanding has been drafted and is in the final process of approval with The University of the West Indies (Trinidad), a major center to train residents of the Caribbean Community to become physicians.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- **Holistic review of candidates for admission.** The school uses a holistic approach to medical school admissions that aligns admissions criteria with the mission and goals of our educational program. Holistic review helps to identify candidates best suited for success in the program using criteria beyond the normal metrics of grade point average and MCAT scores.
- **Master Educators.** The majority of preclinical faculty members at the OUWB School of Medicine are Master Educators, whose primary focus is excellence in medical education and the scholarly pursuit of the improvement in the development, delivery, and assessment of curriculum.
- **A highly integrated organ-based curriculum.** The OUWB School of Medicine pre-clinical curriculum utilizes an integrated, organ-system-based approach that encourages students to learn foundational materials in the basic sciences in the context of clinical situations. Basic scientists and physicians (about a 50-50 mix) provide instruction.

- **Longitudinal courses.** Longitudinal courses such as the Art and Practice of Medicine, Promotion and Maintenance of Health and Medical Humanities and Clinical Bioethics thread through the curriculum, providing curriculum in context of simultaneously occurring organ-systems and foundational basic science courses.
- **Team-Based Learning (TBL).** Courses utilize interactive TBL sessions to provide students with opportunities for formative assessment and encourage development of problem solving and teamwork skills.
- **An exceptionally strong clinical instruction partner.** A clinical affiliation with the Beaumont Health System provides a single strong clinical affiliate with considerable experience in medical education. Using a single clinical affiliate allows a uniformity of instruction and clinical experience for all students. The volume and diversity of the patient population and the quality of the physician faculty in the Beaumont Health System is outstanding, providing a rich learning environment for our students in both the hospital and ambulatory setting.
- **Capstone Program.** The Capstone Program provides instructional foundation and faculty-mentored support for students undertaking a scholarly project that spans the four years of medical school. This required program encourages students to pursue individual interests outside the standard core curriculum and develop expertise in a field of their choosing in a faculty-mentored environment.
- **PRISM program.** The PRISM program (Promoting Reflection and Individual growth through Support and Mentoring) focuses on wellness and personnel and professional development through a multilayered support system using fellow students, residents, and faculty as mentors.

FACULTY

FACULTY RECRUITMENT

- Clinical chairs and faculty members are recruited through the Beaumont Health System. Beaumont employs nearly 500 physicians, all of whom have faculty appointments.
- Nearly 1,000 community-based physicians have faculty appointments and participate in many levels within the School of Medicine through a novel "meaningful participation" program (please see below in "what has worked well").
- At this time, basic science faculty members focus on education and research in medical education. The School of Medicine has one basic science department – the Department of Biomedical Sciences – and this department (with assistance from the associate dean for education) has been successful in recruiting faculty members from a national pool of candidates.
- Some candidates for faculty positions are "risk adverse" about joining a new medical school.
- The proximity of our school to two legacy schools and two schools that are emerging behind us (Central Michigan and Western Michigan) increases competition for local talent.

VALUING TEACHING

- The School of Medicine worked carefully with the Oakland University provost to establish a pathway for tenure based upon scholarship in medical education.
- Each member of the Department of Biomedical Sciences (those faculty members dedicated to teaching basic science and other foundational disciplines such as preventive medicine, ethics, and humanities) is either tenured or on a pre-tenure pathway.

- Each faculty member has been engaged in scholarship in medical education.
- The Oakland University William Beaumont School of Medicine was heavily represented in the poster sessions at the CGEA meeting and won an award for Innovation in Medical Education at the spring 2012 CGEA meeting.

FACULTY DEVELOPMENT INITIATIVES

- All faculty development programs are funded completely through the Office of the Dean.
- Before the school opened for classes in August 2011, the major faculty development effort to assist faculty in improving teaching and assessing students was conducted through an activity coordinated centrally by the associate dean for academic and faculty affairs and was known as the ADVANCE Program.
- ADVANCE program classes offered before classes commenced engaged national experts in medical education and School of Medicine-based faculty. Continuing medical education credits were offered and selected courses were available online for self-paced instruction with CME credit offered.
- After instruction commenced in August 2011, The Center for Medical Education Scholarship, Faculty Development, and Leadership was established with ADVANCE as one component of the center.
- The center was designed to enable all Oakland University William Beaumont School of Medicine faculty members to make meaningful contributions to their professional goals and the institution's mission. The center is directed by the associate dean for academic and faculty affairs and continues to be completely funded by the Office of the Dean.
  - Establishes and sustains a community of learning and teaching culture that promotes faculty vitality and excellence.
  - Plans and implements faculty development activities that ensure effective and successful recruitment, appointment, retention, and promotion of faculty.
  - Maintains an on-line repository of training materials for faculty development.
  - Advances the adaptation of technology in medical education and assesses the effectiveness of existing and emerging educational technologies.
  - Trains and educates visionary, innovative leaders who are capable of promoting the school's mission and capitalizing upon emerging academic medicine teaching pedagogy.
  - Implements a life-cycle of learning experiences that enable our faculty to achieve their highest ambitions as educators, investigators, and clinicians.
  - Communicates current faculty development opportunities to the medical school community.
  - Ensures consistency with the school's core beliefs, and ensure optimal use of internal and external resources by coordinating faculty development offerings at all Beaumont Health System and School sites.
  - Expands participation in national and international faculty development organizations and repositories that assist or promote academic medicine best practices in teaching, scholarship, leadership, and professional development.
  - Offers opportunities for teaching excellence recognition and celebration.

The menu of center activities follows with the number of faculty members who have participated in these activities from August 2011 to the compilation of this LCME database (May 2012):

- Faculty Consultation Service
  - Course directors, department chairs, or members of the dean's staff may refer faculty members to the service for remediation of teaching or assessment skills. Consultations are private and customized to the issue at hand.
  - A development plan for improvement is designed with follow-up measures and milestones agreed upon by both the faculty member and the counselor. When faculty members are referred to the service, reports are issued to the individual who initiated the consultation.
  - Faculty members may elect to refer themselves for consultation on any area of medical education. Self-referrals are not reported to course directors or department chairs unless the faculty member requests that it be known that a program of self-improvement has been initiated and completed.
- Leadership Development Programs
  - The Chairs Executive Development Program was initiated in 2011-2012 and focused on leadership in the academic medical center. The program was designed for department chairs and directors of Beaumont Health's Centers of Excellence.
  - Group on Women in Medicine and Science promotes leadership skills for women throughout the School of Medicine and Beaumont Health System.
- Medical Education Research Program
  - This program focuses on the advancement of scholarship in medical education research, and provides an avenue for recognizing faculty achievement in medical education scholarship.
- In May 2012, the Oakland University William Beaumont School of Medicine hosted a weeklong intensive on-site faculty development series featuring national leaders in medical education and faculty development, titled Medical Education Week.
  - The event was funded through a generous endowment from a private donor.
  - More than 35 faculty members presented posters at this event, highlighting faculty research in medical education.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The medical school culture of scholarship and service creates a unique, personalized learning environment. The culture drives diversity and inclusion initiatives, community engagement, and the school's focus on healthcare disparities.
- The school's early implementation of holistic review for admissions permitted us to recruit students who are committed to the school's culture and values.
- The PRISM Program (Promoting Reflection and Individual growth through Support and Mentoring) for medical students focuses on student wellness through a combination of mentoring, support services, and course work and is a unique characteristic of the school. This program, developed by our associate dean for student affairs, has received national attention to use this program as a possible template for graduate medical education.

- The medical school has a single clinical teaching affiliate. The Beaumont Health System provides high quality teaching venues for students in different clinical settings among its hospitals and other facilities so that the school can standardize the quality of the educational experience across the healthcare system. Beaumont Health System, a nationally recognized leader in healthcare quality and safety, provides an exceptionally rich and diverse patient population.

- The Beaumont Research Institute provides an outstanding infrastructure to faculty and students for "bench" research. Beaumont's GME programs provide outstanding residents who are trained to teach and evaluate medical students.

- The School's Meaningful Participation Program provides faculty development to community-based physicians and provides incentives for these physicians to teach in the school and in Beaumont's graduate and continuing education programs, to participate in mentoring programs, committees, and to staff service learning projects.

The school enjoys an exceptional level of engagement and by all faculty members—from the basic sciences and clinical disciplines—to develop and deliver the curriculum and to design self-governance mechanisms for the School of Medicine. The school maintains wait lists for faculty members who wish to serve on committees.

LESSONS LEARNED

- We would advise LCME or the AAMC to provide education to individuals in positions of leadership at universities on the operations of medical schools before these institutions are permitted to file for applicant status.

- It would be helpful for the leaders of institutions planning schools to acknowledge in advance the steps that they will need to take in order to bring a new medical school on-line with an excellent chance of achieving all of the accreditation steps.

MOST PROUD OF TO DATE

- Successful implementation of the school's Capstone Project. Capstone provides a year of instruction in research methodology. Students use the school's mentoring program to select a project from one of 12 categories, spanning areas such as traditional bench research, healthcare advocacy, healthcare disparities, and education.

- COMPASS Center for Community Engagement. The center was named around the concept of a compass as a tool for a student to find direction; the word "compass" is also the first seven letters of the word "compassion." COMPASS is the school's social mission in action, and many Capstone Projects are conducted in COMPASS-related activities.

- The medical student successes in activism. Three of our students worked with the Michigan State Medical Society to successfully introduce a resolution into the Michigan House dealing with medical student indebtedness. The OUWB AMWA chapter received the National Heller Outstanding Branch Award in March 2012 after only several months of operation.

- The faculty's engagement in the scholarship of medical education. This past spring, faculty were awarded a prize for innovation in medical education at the meeting of the AAMC's Central Group on Educational Affairs. Without prompting, basic science faculty members formed a focus group to support each other's scholarship in medical education.

Western Michigan University School of Medicine
Kalamazoo, Michigan

Hal B. Jenson, M.D.
Founding Dean
Mission of the New School

To advance the health of humanity through excellence in medical education, clinical care, research, and service. These pursuits are interdependent and together assure optimal care for today and hope for tomorrow.

- The mission and goals for the first decade were adopted by the medical school incorporators in March 2011.

- In February 2012 at its first meeting, the Western Michigan University School of Medicine (WMed) Board of Directors approved the mission, vision, values, goals for the first decade, and nine strategies that are key elements of the 2012-2014 strategic plan focused on development of the new medical school.

RELATIONSHIP TO THE PARENT UNIVERSITY

- WMed is incorporated as a private 501(c)(3) nonprofit corporation.

- WMed has been approved by the State of Michigan as a nonpublic university with authority to grant the Doctor of Medicine degree and other health care-related degrees.

- The WMed Board of Directors—composed of representatives from Western Michigan University, Borgess Health, Bronson Healthcare Group, Inc., and the faculty of WMed—is responsible for financial oversight, adherence to the Articles of Incorporation and Bylaws, and the appointment of faculty and administrators.

- WMed is supported by private gifts, clinical revenue, research activity, tuition from students, and endowment income.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Curriculum Committee is responsible for defining the goals, objectives, assessments, structure and content of the medical curriculum, including all courses, clerkships, and electives.

- In fulfillment of these responsibilities, the committee is charged by the dean with approving courses, clerkships, and electives and developing educational policies, in the best interests of the institution and its students.

- There are three standing subcommittees.

  – The Foundations of Medicine Subcommittee is chaired by the assistant dean for foundations of medicine. Membership includes all course directors from the Foundations of Medicine component of the curriculum.

  – This committee is charged with oversight and evaluation of the Foundations of Medicine and reports to the Curriculum Committee.

    - There are course subcommittees for each of the courses of the Foundations of Medicine, co-chaired by the course directors.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

- These subcommittees are charged with oversight implementation and evaluation of their individual courses.
  - All report to the Foundations of Medicine Subcommittee.
- The Clinical Applications Subcommittee is chaired by the assistant dean for clinical applications. Membership includes all clerkship directors form the Clinical Applications component of the curriculum.
- This committee is charged with oversight and evaluation of the Clinical Applications and reports to the Curriculum Committee.
  - There are clerkship subcommittees for each of the Clinical Applications clerkships, chaired by the clerkship director.
  - These subcommittees are charged with oversight, implementation, and evaluation of their individual clerkships.
  - All report to the Clinical Applications Subcommittee.
- The Interprofessional and Longitudinal Education Subcommittee is chaired by a faculty member with membership from basic science faculty and clinical faculty.
- This committee is charged with coordinating the longitudinal clinical experiences, incorporating disciplines across the organ-systems courses and integrating interdisciplinary learning by medical students with learners from other colleges at WMU and other educational institutions.
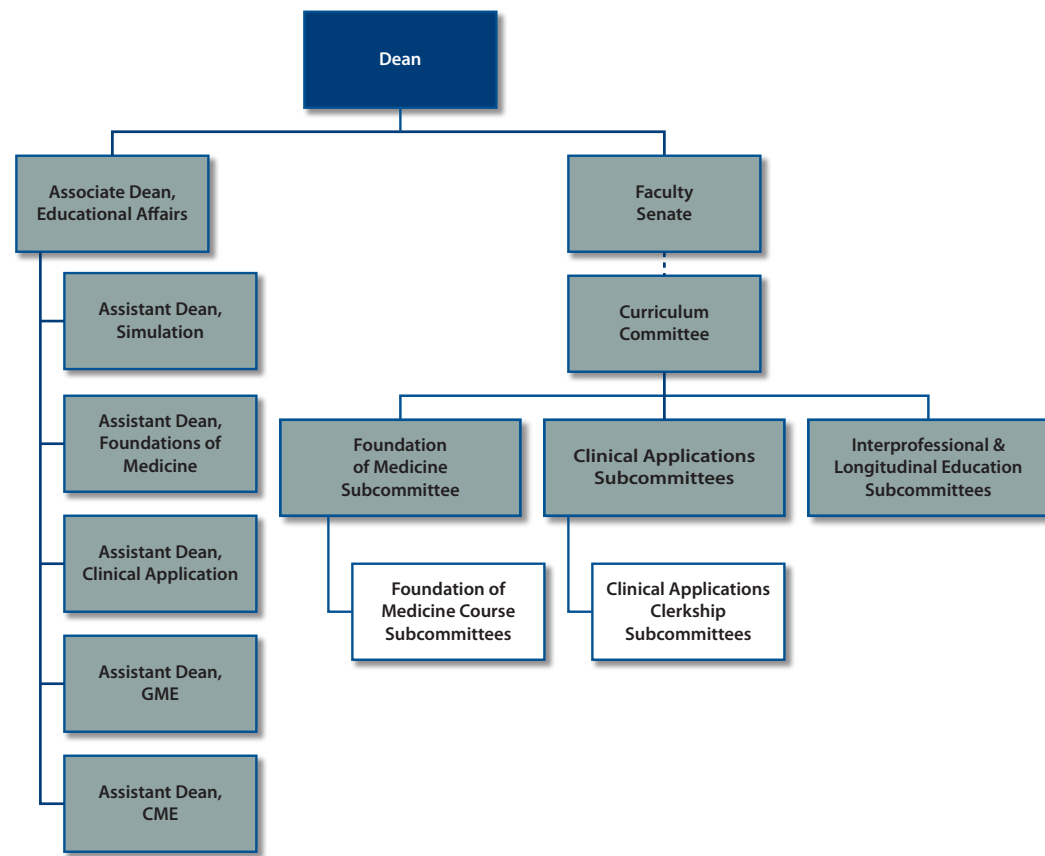
SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF STUDENT AND RESIDENT AFFAIRS

- The Office of Student and Resident Affairs supports the Curriculum Committee, the Department of Medical Education, and the faculty in advancing learning across the continuum of medical education. This office provides the necessary support for day-to-day operations of the curriculum, including management of the curriculum database; collecting, monitoring, and reporting student evaluations and test scores; faculty teaching evaluations; course evaluations; and overall curriculum evaluations and learner outcomes.

DEPARTMENT OF MEDICAL EDUCATION

- The Department of Medical Education will provide the necessary support, consulting and training of faculty members to advance learning across the continuum of medical education.
- The department will work with faculty members to strengthen and develop their teaching skills, and lend their expertise in the areas of curriculum development, evaluation, measurement, educational scholarship, and academic portfolio development.
- The department will consist of a chair and faculty experienced in educational assessment.
- The chair of the Department of Medical Education will report to the dean and will work collaboratively with the associate dean for educational affairs, the Curriculum Committee, the course/clerkship directors, and the faculty.

FINANCIAL MANAGEMENT

- The medical education program has a specific operating budget to support the delivery of the curriculum.
- Annually, the dean, with input from the associate dean for educational affairs, the other associate and assistant deans, and the faculty as whole, determines the budget to support the medical student education program.

LEARNING OUTCOMES

- The Curriculum Committee defined the overall program learning goals or core competencies for the WMed curriculum around the ACGME six general competencies.
- Two additional competencies were added that are consistent with the WMed mission and goals for the first decade.
  - The seventh competency – Personal Management and Self Care – is inward-looking to help students be the best persons they can be, in addition to being the best physicians they can be, and to enhance emotional intelligence and a balanced life.
  - The eighth competency – Active Citizenship in Community Health – is outward-looking to promote a personal commitment to community health and service.
- These eight core competencies that have been established for WMed represent goals for medical education across the continuum from medical school through residency and into practice.
- Students must demonstrate competency in each by the time of graduation.

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Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

COMPETENCIES:

1. Medical Knowledge

2. Patient Care

3. Practice-Based Learning and Improvement

4. Interpersonal and Communication Skills

5. Professionalism

6. Systems-Based Practice

7. Personal Management and Self-Care

8. Active Citizenship in Community Health

STUDENT ASSESSMENT

- All students will be expected to demonstrate the knowledge, skills, attitudes and behaviors consistent with the WMed core competencies and the associated objectives.

- WMed will incorporate a multifaceted assessment strategy that enables feedback and evaluation throughout the student's educational career to support the student in meeting the core competencies.

- Assessment data will be collected from a variety of sources and will include both formative and summative assessments.

- A curriculum management system will serve as the main repository for all assessment data.

- The Department of Medical Education, in conjunction with the associate dean for educational affairs and the Curriculum Committee, will be responsible for developing the educational delivery system, analyzing the assessments and outcomes, informing appropriate stakeholders of the results, and using this data to improve the educational experience and learner outcomes.

- The assessment strategy includes the following types of evaluation: internal examinations, direct observations, multisource evaluations, student documentation, and external examinations.

- The range of student assessment methods appropriate to WMed's learning objectives will be utilized.

- The course/clerkship directors will finalize the formative and summative assessment plans for each course/clerkship. These will be presented to the Curriculum Committee for review and approval to ensure an appropriate mix of testing and assessments.

- The Curriculum Committee will take a holistic view of the overall student assessment strategy to determine whether all methods are effective or if new methods should be incorporated.

- A variety of assessment methods appropriate to WMed's core competencies and program goals will be utilized to evaluate the effectiveness of the medical education program

- The assessment methods include: 1) student acquisition of knowledge and skills using the multifaceted student assessment strategies previously described, 2) measurement of student experience during each course/clerkship utilizing surveys and a student focus group process, 3) measurement of faculty and instructional performance through student and peer reviews, and 4) advancement and graduate rates, AAMC questionnaires, NRMP match results, residency placements, and success post-graduation to confirm preparedness for clinical practice.

CLINICAL EDUCATION

- The medical curriculum integrates both basic sciences and clinical experiences throughout the four years of medical school.

- Patient exposure begins five weeks into the first year and clinical exposure gradually increases throughout the curriculum.

- As the students begin to learn about the science of disease in their course work, in parallel, they will observe how illness affects patients and families in real-life situations.

- During Foundations of Medicine (Years 1 and 2), there are two main venues that provide clinical exposure: the Longitudinal Patient Care Experiences course and the Clinical Correlations component embedded within each organ-system course.

  – Longitudinal Patient Care Experiences provide three hours each week for students to experience varied clinical settings on a rotating basis.

  – The Clinical Correlations component contained within each organ-system course provides opportunities where students will:

    - Be exposed to clinical settings that reinforce the basic science content of that organ system, such as the Endoscopy Suite during the Gastrointestinal course and the Cardiac Catheterization Lab during the Cardiovascular course.

    - Be exposed to interprofessional healthcare team members relevant to the current organ-system course, such as Respiratory Therapists during the Pulmonary course and Blood Bank technologists during the Hematology course. These experiences acquaint the student with the educational background, training and roles of other healthcare team members.

- During Clinical Applications (Years 3 and 4), extensive clinical encounters will be achieved during the six required third-year clerkships with inpatient and outpatient clinical experiences, as well as a clinically robust fourth year, including three subinternship clerkships, an ambulatory clerkship, and up to 18 weeks of electives.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- The first two years of medical school, the Foundations of Medicine, covers a 79-week learning experience that builds the foundational knowledge of basic sciences that is integrated with the clinical sciences and applied to the clinical environment.

- Following a three-day orientation, the orientation and assimilation process will continue with two student success weeks held on Weeks 4 and 9. These are opportunities for structured learning combined with team building and socialization.

- Active learning instructional formats and strategies include: interactive lectures, team-based learning, problem-based learning, simulation-based learning, integrated learning, blended learning, classroom assessment techniques, and independent mentored activities.

- The first three courses with 15 weeks of instruction focus on the fundamental elements of life and human living systems. During this period, students will also begin to attend laboratory and clinical skills sessions, which introduce the core principles of anatomy and diagnostic imaging, and develop essential skills for medical practice, such as history taking and physical examination.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

- Eight organ-system courses will include normal structure and function as the basis for understanding the abnormal structure and function of each specific organ system. Principles of diagnosis, treatment and prevention will be taught. The organ-system courses will include relevant and applicable aspects of preventive medicine, acute and chronic disease, and continuing, rehabilitative and end-of-life care. Laboratory and clinical skills sessions will be held during each organ-system course.

- Threaded horizontally throughout the curriculum are key disciplines that tie basic sciences and clinical disciplines together, including preventive medicine, nutrition, gender- and age-related issues, and epidemiology.

- The Profession of Medicine is a longitudinal course throughout the four years of medical school that integrates the art and science of medicine to ensure a well-rounded, compassionate physician that meets the needs of patients, families, and society.

- Interprofessional education integrated into the curriculum through a partnership with the Western Michigan University College of Health and Human Services, as well as other local health education programs.

- At the end of the Foundations of Medicine, a Transition to Clinical Care course will prepare students to take the USMLE Step 1 and will orient students to the next phase of the curriculum – Clinical Applications.

- Clinical Applications (Years 3 and 4) is an 89-week learning experience that enables students to further integrate the basic sciences with the clinical sciences during six 8-week clinical clerkship rotations in the core disciplines of medicine.

- The first week of every third-year clerkship rotation is the Preparatory Week where students will be engaged in a variety of specific learning sessions to prepare them for the unique experiences of the upcoming clerkship. Students will be immersed in the clinical environment for six weeks. The final week of each third-year clerkship is the Assessment Week. Students will have time dedicated to practice, preparation, complete assessment using simulation-based training and will take the NBME Shelf Examinations for both formative and summative assessment.

- At the end of Clinical Applications is a two-week Transition to Residency Course to prepare medical students for the next step in their medical careers – as a resident in graduate medical education.

- In addition to the courses and clerkships, each medical student will have four additional co-curricular requirements for graduation: 1) scholarly activity, 2) quality improvement activity, 3) service learning activity, and 4) mentored teaching activity. A fifth, an international health experience, is encouraged as an option.

- The curriculum provides training for the skills that specifically foster developing habits of self-directed inquiry, exploration and lifelong learning: self-reflection and self-assessment to identify needs; evidence-based medicine skills to assess the credibility of information sources; and critical thinking skills to synthesize and integrate relevant information.

- This body of formal instruction, and the four co-curricular requirements that embed active learning, individualized inquiry and exploration, and independent study together foster acquiring the necessary skills and developing the habits for lifelong learning.

FACULTY

FACULTY RECRUITMENT

- WMed has a solid core of clinical faculty with 63 full-time employed faculty in seven established departments.

- It is anticipated that the new medical school will make Kalamazoo even more attractive to clinical educators and our hospital affiliates will be in an even stronger position to recruit and retain faculty.

- In addition to these employed faculty members, there are 420 clinical (volunteer) faculty in the Kalamazoo area who have been involved in teaching medical students with faculty appointments at another state medical school.

- All parties anticipate faculty appointments at WMed.

FACULTY DEVELOPMENT/VALUING TEACHING

- Faculty development in five domains – teaching, research and scholarship, clinical care, compliance, and administration and leadership – is fundamental to achieve and maintain excellence and is being woven into the fabric of the medical school from the beginning.

- Faculty development will be under the auspices of the associate dean for faculty affairs in collaboration with other deans and department chairs, and will include instructors from within WMed and beyond with expertise in specific areas.

- Providing faculty development to enhance teaching and learning was a principal basis for creating a Department of Medical Education within the medical school to continue to bring innovation to curriculum design and delivery through use of educational practices that are learner centered and evidence based.

- The Department of Medical Education will work closely with the associate dean for faculty affairs to develop programs specifically to strengthen faculty teaching and assessment skills.

- The inclusion of medical educators to focus on educational practices and facilitate deployment of adult learning principles, educational innovations and advanced technologies is integrated into curriculum design and delivery.

- WMed will provide comprehensive faculty development and education programs that will be offered, and for some content required, to all faculty: full-time, part-time, and volunteer.

- Faculty development opportunities will include a combination of workshops, seminars, web-based meetings, and online modules.

- A website with a web-based calendaring system for informing all faculty of personal and professional faculty development opportunities will be developed for WMed.

- WMed will develop an orientation program, as well as a faculty mentoring program for all new junior faculty for career guidance that will address skills in all five domains, and also career and promotion counseling.

- Faculty will review progress annually with mentors to develop specific plans to monitor progress.

- As part of this program, WMed will create a resource database of mentors, both within WMed and beyond, to facilitate linking mentees with a team of mentors.

- WMed will provide leadership development programs for all faculty to build depth of mentoring expertise and as part of institutional succession planning.

- Celebration of faculty achievements and success is an important component of the faculty recognition program.

- A variety of faculty recognition awards and events will be planned.

LESSONS LEARNED AND SOURCES OF PRIDE

- WMed has moved from an idea to a planned approach for development of a new medical school because of the rich assets in the Kalamazoo community, including a nationally recognized research university, nationally recognized hospitals, a 39-year history of medical education, multiple outpatient facilities, a strong base of physicians with high patient volumes and a diverse patient mix, a century-long heritage of drug discovery and medical device development, a strong base of community philanthropy, and a vibrant, committed, and supportive community.

- WMed has shown tremendous community involvement to develop the medical school and to prepare for preliminary LCME accreditation through a planning committee structure consisting of 12 committees, 22 subcommittees, and 23 work groups involving more than 270 individuals from the two Kalamazoo hospitals, WMU faculty and administration, private medical practices, area businesses, community agencies, and nonprofit organizations.

Cooper Medical School of Rowan University
Camden, New Jersey

Annette C. Reboli, M.D.
Founding Vice Dean and Senior Associate Dean for Faculty Affairs

Paul Katz, M.D.
Founding Dean

MISSION AND VISION OF THE NEW SCHOOL

Cooper Medical School of Rowan University is committed to providing humanistic education in the art and science of medicine within a scientific and scholarly community in which inclusivity, excellence in patient-care, innovative teaching, research, and service to our community are valued. The core values include a commitment to diversity, personal mentorship, professionalism, collaboration and mutual respect, civic responsibility, patient advocacy, and lifelong learning.

- The mission took several months to craft and refine with input from the faculty. We hearken to our mission in all key activities ranging from student recruitment to development of our learning objectives and curriculum and we have stayed true to its intent in all that we do.

- Two key areas embraced within our mission that have emerged as increasingly important to us are our commitment to diversity and service to our community.

- The motto of the school is "Camden is our classroom…Camden is our home."

- Relationship to the parent university

- The parent university, Rowan University, is the governing body for Cooper Medical School of Rowan University (CMSRU).

- The dean of Cooper Medical School of Rowan University reports directly to the president of Rowan University. He is a member of the university president's Executive Cabinet.

- The vice dean is a member of the University Council of Deans and the Academic Affairs Committee.

- Approximately 60 members of the university community participated on the various committees formed by CMSRU for preliminary accreditation.

- Some departments, such as information technology, have been extremely helpful in the first phase of development of CMSRU.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Office of Academic Affairs, led by the associate dean for academic affairs, provides the oversight and support needed for the delivery of the curriculum.

- The associate dean reports directly to the dean. Assistant deans manage each segment of the curriculum and student assessment.

- The dean has charged the associate dean for academic affairs, the Curriculum Committee, the faculty, and departmental chairs with ensuring that the curriculum embodies the competencies defined by the school.

- The Curriculum Committee is composed of appointed faculty, elected faculty, elected students, selected course and clerkship directors, and the deans of academic affairs who serve in an *ex-officio* capacity.

- There are four formal standing subcommittees of the Curriculum Committee: Phase I (Foundation and Integration) Subcommittee; Phase II (Application, Exploration and Advancement) Subcommittee; the Innovations in Curriculum Subcommittee; and the Assessment Subcommittee.

- The composition of the Phase I and Phase II Subcommittees includes course and clerkship directors and an appropriate mix of faculty members, while the Innovations in Curriculum Subcommittee and the Assessment Subcommittee are chosen by the Curriculum Committee chair.

- Ad hoc committees are formed as the committee and Dean feel appropriate to meet the needs of the committee.

- All subcommittees report to the Curriculum Committee.

- The Curriculum Committee develops, reviews and makes policy recommendations regarding the curriculum for the M.D. degree and develops standards for the evaluation of the educational program for CMSRU.

- The Curriculum Committee has the responsibility of advising the faculty in the following areas: establishment of requirements for the M.D. degree, educational goals and objectives, content of courses, methodology of teaching, establishment of an academic calendar, and evaluation of courses and the curriculum as a whole.

- The Curriculum Committee conducts rigorous ongoing assessment of the components of the curriculum, the curriculum as a whole, and the outcomes of CMSRU educational programs.

- The faculty approve proposed major changes in the curriculum. The function of this committee is codified in the CMSRU Bylaws.

ROLES AND RESPONSIBILITIES ARE AS FOLLOWS:

DEVELOPING AND REVIEWING THE INSTITUTIONAL OBJECTIVES FOR THE EDUCATIONAL PROGRAM

- The institutional learning objectives for the educational program were developed by faculty members of the Curriculum Committee. They were reviewed and approved by the dean and the Executive Council, acting on behalf of the faculty.

- The Curriculum Committee, through its Phase I and Phase II subcommittees, reviews the institutional learning objectives on an annual basis to assure congruence with the mission and the strategic plan of CMSRU.

- Any recommendations for change by the Curriculum Committee are reviewed and approved by the dean.

- The departmental chairs and faculty are educated about the institutional learning objectives and any changes are communicated to them by the Office of Academic Affairs.

ENSURING THE USE OF APPROPRIATE TEACHING METHODS OR INSTRUCTIONAL FORMATS

- The associate dean for academic affairs is responsible for ensuring that appropriate teaching methods and instructional formats are used throughout the curriculum.

The vice dean is assisted by the assistant dean for faculty and student assessment and development in developing programs for all medical educators (including faculty, residents, fellows, and graduate students) to ensure teaching skills are appropriate and up to date.

- The assessment of teaching methods is part of the annual review of faculty.

ENSURING THAT CONTENT IS COORDINATED AND INTEGRATED WITHIN AND ACROSS ACADEMIC PERIODS OF STUDY
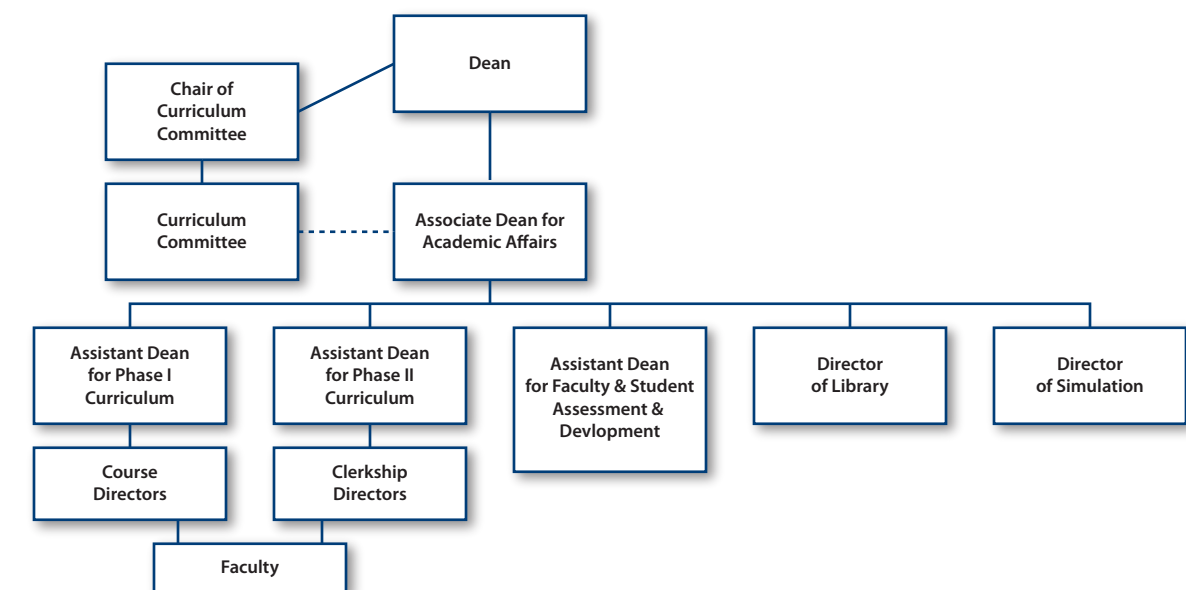
- The Curriculum Committee, through its Phase I, Phase II, and Assessment Subcommittees, is responsible for ensuring that curricular content is coordinated and integrated within and across academic periods.

ENSURING THE USE OF APPROPRIATE METHODS TO EVALUATE STUDENT PERFORMANCE

- The assistant dean for faculty and student assessment and development, in concert with the Assessment Subcommittee, is responsible for reviewing and updating methods to assess student performance.

- The individual works under the direction of the associate dean for academic affairs and reviews and presents the assessment methods to the course/clerkship directors and the Curriculum Committee for the approval by the latter.

MONITORING THE QUALITY OF TEACHING

- Course and clerkship directors are the first line in monitoring the quality of teaching by not only faculty but also residents, fellows and graduate students.

- The Office of Academic Affairs, working under the direction of the assistant dean for faculty and student assessment and development and under the oversight of the associate dean for academic affairs, collects and analyzes data assessing the quality of teaching by each faculty member in each course or clerkship.

- Student evaluations and student performance are included among the data elements. This information is supplied to the course and clerkship directors and to the departmental chairs and division heads for review with the faculty. It is also supplied to the Curriculum Committee.

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Medical Schools in the United States and Canada

AAMC

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Medical Schools in the United States and Canada

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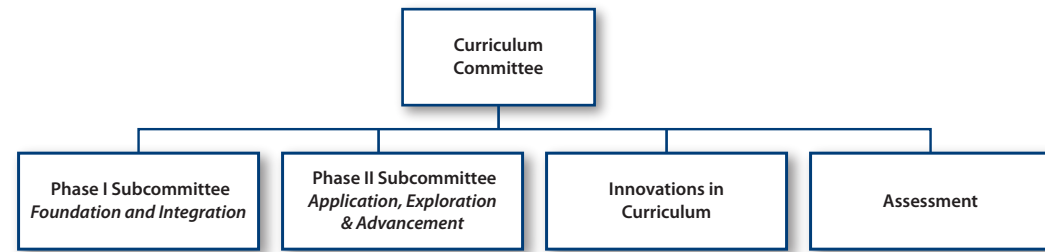
SUPPORT FOR THE EDUCATIONAL PROGRAMS

OFFICE OF ACADEMIC AFFAIRS

- The Office of Academic Affairs is responsible for the educational processes. The office of Academic Affairs is led by the associate dean for academic affairs.
- There are three assistant deans; assistant dean for Phase 1 of the curriculum, assistant dean for Phase 2 of the curriculum, and assistant dean for faculty and student assessment and development.
- The director of library service, the director of simulation, an instructional designer, and an educational coordinator also comprise the office.

FINANCIAL SUPPORT

- Basic Science faculty are full-time employees of CMSRU.
- The core clinical faculty are compensated by CMSRU proportional to their effort on behalf of the medical school through financial support from CMSRU to the affiliate hospital.
- There is a separate budget to support education.
- The Office of Academic Affairs has a specific operating budget.

LEARNING OUTCOMES

- CMSRU has adopted the core competencies endorsed by the ACGME and defined three additional competencies specific to our program.
- Institutional learning objectives/ outcomes have been defined for each competency.
- All courses and clerkships have developed learning outcomes aligned with the institutional objectives/ outcomes.
- Institutional Learning Objectives are presented in Appendix G.

STUDENT ASSESSMENTS

- Formative and summative assessments of students are performed in each course and clerkship.
- As courses were developed, the course directors were tasked with choosing appropriate assessment methods and tools and with illustrating the linkages between the assessments and the course and institutional objectives.

- Types of assessments include:
  - Internal Examinations including multiple-choice questions, (NBME customized assessment services), essays, and problem sets.
  - Direct Observation including preceptor observation of clinical skills, simulation, OSCEs.
  - Multisource Evaluations including self, peer, healthcare team, patient.
  - Student Documentation including reflective narratives, recorded history and physical examination, progress notes, and patient logs.
  - External Examinations, including NBME shelf and USMLE examinations.

CLINICAL EDUCATION

- Students have comprehensive hospital-based and a variety of ambulatory clinical experiences throughout all four years of the curriculum.
- Clinical experience begins in the Ambulatory Clerkship during the third week of the first year and continues in a longitudinal fashion for the subsequent three years.
- First- and second-year students have a hospital-based experience through an immersion experience, "Week on the Wards."
- The third year is designed as a longitudinally integrated clerkship adopted from the Harvard-Cambridge model.
- The fourth year includes acting internships in medicine, surgery, or pediatrics, critical care, and emergency medicine clerkships, a chronic care clerkship that is mainly ambulatory, and a variety of electives.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Hybrid educational program of didactics, case-based learning, and self-directed learning.
- An Ambulatory Clerkship experience that begins in the third week of Year 1 and continues through all four years.
- An emphasis on interprofessional learning. Students will work as a team with other healthcare providers (currently pharmacy students from the University of the Sciences of Philadelphia and nursing students) through their entire Ambulatory Clerkship experience.
- The Foundations of Medical Practice course teaches clinical skills over a longitudinal period during the first phase of the curriculum developing enabling competencies necessary for the clinical clerkships.
- The Scholar's Workshop is a four-year longitudinal experience that will provide students with a "tool kit" to practice evidence-based medicine, develop critical reasoning skills, and perform quality improvement projects.
- An emphasis on addressing healthcare disparities and the science of healthcare delivery, particularly within the Camden community where CMSRU is located.
- A completely integrated third-year clerkship for all students (Cooper Longitudinal Integrated Clerkship) consisting of the core disciplines of Internal Medicine/Surgery/Obstetrics and Gynecology/Pediatrics/Neurology/Psychiatry/Family Medicine and modeled after the Harvard Cambridge initiative.
- A required non-medically related community service experience of 40 hours.
- The Healer's Art, a special course that encourages students to make an active commitment to strengthening and preserving their humanity and experience the effects of listening generously and compassionately.
- Modules on health care for specific populations (LGBT and veterans).

FACULTY

FACULTY RECRUITMENT

- CMSRU started with 450 clinical faculty from our primary affiliate, the Cooper Health System.

- The recruitment of basic scientists has been through advertisements in journals and word of mouth.

- We received over 600 applications for our initial recruitment of 14 faculty positions.

- In addition, we have formed affiliation agreements with the Coriell Research Institute and the University of the Sciences of Philadelphia (Philadelphia College of Pharmacy) that augment the ranks of our basic science faculty.

- Our initial efforts to recruit faculty have been directed at hiring master educators.

- Recruiting anatomists has been challenging as has recruitment of truly innovative educators.

VALUING TEACHING

- During the first phase of the development of CMSRU, our emphasis is on establishing the educational program, and hence, teaching is highly valued.

- The roots of Rowan University are as Glassboro State College, which was a teachers college.

- Teaching is highly valued, both at the parent university and at CMSRU.

- Teaching is one of the four domains by which faculty are assessed.

- Two of our four academic tracks, the clinician educator track and the academic educator track, allow for a pathway for educators to be recognized for promotion and tenure (for academic educators).

- The salary and benefits of our basic scientists are covered totally by CMSRU, which relieves them of any pressure to obtain funding from grants. This allows faculty to concentrate on the educational mission.

- Similarly, salary support proportional to effort is provided by CMSRU for the clinical faculty who are heavily engaged in the educational program.

- We are in the process of establishing a Teaching Scholars' program that rewards our master educators with special faculty development and enrichment activities.

FACULTY DEVELOPMENT INITIATIVES

- We have designed a development program that meets the needs of our faculty through a customized, integrated approach that is practical, multimodal, geared to adult learning styles, and recognizes the time constraints of busy faculty.

- Our goals for faculty development are to provide support that leads to excellence in education, and to foster personal and professional growth.

- By engaging faculty to identify their needs through an online survey, we have been able to craft a professional development program that is highly focused

- The program has four themes: creation of professional learning communities; "just in time learning"; customized offerings; and orientation and mentoring.

- We have developed a tiered approach that becomes more customized, and focused on a narrower segment of the faculty as we move from the base (Level 1) to the apex (Level 5). Level 1 offerings are open to all faculty and include on-line content and large group forums that are conducted in the evenings to accommodate busy clinicians with practice sites remote from the health sciences campus. Level 2 includes orientation designed to inform all new faculty of available resources and a research mentorship program.

- Faculty at Levels 3, 4, and 5 are members of "professional learning communities." They commit to participation in a specific, required array of activities and exercises.

- Level 3 consists of a well-defined series of small-group sessions and a mentorship program aimed at junior faculty and junior to midcareer faculty who are under-represented in medicine.

- In Level 4, specialized programs and retreats are available for our master educators and student advisers.

- At Level 5 are the relatively small cadre of faculty (our course and clerkship directors, and our active learning group facilitators) who are involved in curriculum development and who will be very actively engaged in direct instruction of students in our educational program.

- Offerings to this group include workshops on curriculum design, assessment, case-based learning, and the optimal use of learning management systems. For this professional learning community, development is embedded in their regular work schedule.

- Faculty development topics that are carefully selected and scheduled to correlate with specific tasks are often presented in a "just in time" manner. They may be subsequently revisited to reinforce and enhance learning.

- There is considerable opportunity for collaborative reflection during regular group meetings and through online forums.

- A significant amount of professional development efforts and resources are targeted at this group.

- On an annual basis, we bring all faculty and residents (as teachers and learners) together during a dedicated professional development immersion week.

- During the professional development week, guest experts in medical education interact with the faculty through presentations, workshops, grand rounds, and observation and feedback during clinical rounds.

- Faculty are encouraged to participate in one or more events as their schedule allows. Routine meetings at the medical school are cancelled to allow for attendance by the deans and directors. This event is embraced by the leadership of the medical school and the academic medical center and acknowledges the importance of faculty development.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The process used to achieve LCME preliminary accreditation because of the hard work, dedication, and focus of the individuals involved.

- The "backward planning" model that has been used to prepare for the arrival of the first class. It has ensured that everything that needs to be accomplished has been considered and done in a timely manner.

- The admissions process which is a holistic review of applicants and has allowed us to exceed our expectations in recruiting a highly diverse class that resonates with our mission.

- The commitment of the faculty who initially worked as volunteers to create CMSRU.

- Support from key departmental chairs.

- Senior leadership has created a positive culture where people feel appreciated and individual talents are valued.

- Engagement of the community.

- Engaging a broad array of Rowan University and Cooper Health System faculty and administrators on a variety of committees in the initial development of CMSRU.

- Seeking input and collaboration from other medical schools, in particular the New Schools Consortium established by the Josiah Macy Foundation.
- Incorporation of diversity into all elements of planning.
- Partnering with our affiliate hospital to have joint faculty development programs.
- Using "Just in Time" faculty development programs to prepare the clinical faculty to design their courses.

LESSONS LEARNED

- Initial lack of defined temporary space for the medical school and subsequently temporary space removed from the Health Sciences campus.
- A relatively laborious hiring process that involves search committees for almost all positions.

MOST PROUD OF TO DATE

- Achieving preliminary accreditation from the LCME with no citations.
- The creation of a contemporary curriculum which matches well with our mission, vision, and values.
- Receiving a first HRSA grant.
- Recruiting what promises to be a wonderful first class.
- Our focus on the community.
- The team that we have recruited and how much we have accomplished in such a short time.

Hofstra North Shore-LIJ School of Medicine
Hempstead, NY

Veronica Catanese, M.D., M.B.A.
Vice Dean and Dean for Academic Affairs

MISSION AND VISION OF THE NEW SCHOOL

MISSION STATEMENT

The School of Medicine, in a culture of community, scholarship, and innovation, is dedicated to inspiring diverse and promising students to lead and transform medicine for the betterment of humanity.

VISION STATEMENT

The School of Medicine aims to establish itself as a revered institution of higher medical education by means of accomplishing the following visionary objectives:

To be a premier "Millennial Medical School"

To be a major contributor to the redefining of medical education

To have positively changed the University, North Shore-LIJ Health System, and the community

To have improved the health of the region

Values

Our values guide and shape the development of our school. It is our commitment to these values that will distinguish us and ensure that our curriculum appropriately addresses the needs of our learners and provides the experiences and mentorship necessary for the transformation of our students into caring and excellent physicians who embody, and will be recognized by, these values in their professional lives. The following 10 essential values guide the School of Medicine:

- Community
- Scholarship
- Innovation
- Learning
- Humanism
- Diversity
- Professionalism
- Patient Centeredness
- Reflection
- Vision

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Community

We will establish a culture of community that will have a transformative role in the health of the public. We are committed to educating future physicians to embrace responsibility for the health of their communities, and to be activists who advocate at the local, regional, and national level for the best care for patients and their community. Fulfilling this value will be an important metric by which we will demonstrate our success as an institution.

Scholarship

We embrace a culture of broadly defined scholarship and excellence, supported by academic recognition of and investment in our faculty and students. We will establish and nurture this culture by aligning the goals of our school with those of our faculty and students. Our students will learn how to inextricably link their scholarly work with their success as physicians.

Innovation

We will actively encourage collective, creative energy that, when used wisely, will move our institution forward. We will promote and reward creativity, leadership, and the courage to experiment. We will be intolerant of those who accept the status quo. We will foster a learning climate that intentionally pushes people out of their comfort zone and encourages a willingness to experiment. We will embrace change and cultivate creative tension in the spirit of progress and improvement.

Learning

We value as pre-eminent the process and complexity of learning and will organize our school as a learning community that respects and supports the individual learning needs of our students to ensure their success. We value learning over teaching and will continuously seek to develop the skills necessary for our faculty to nurture the learning of our students and the entire community. We will celebrate the involvement of our students as they help shape the future health of our community. Our learning community will be a respectful, inclusive, collaborative environment where students, faculty, and university learn and grow together.

Humanism

We recognize that only through a comprehensive understanding and appreciation of the human condition will we successfully develop and nurture a culture and community of physicians who will care for themselves, their patients, and their colleagues with compassion, tolerance, respect, and empathy. This commitment to a curriculum that recognizes, teaches, and rewards humanism enables us to support a culture and environment truly dedicated to healing and promoting health.

Diversity

We are committed to creating and supporting a diverse and inclusive learning community. We will foster a comprehensive understanding of personal differences so that we may recognize the role of bias and prejudice emanating from these differences. The inclusive learning community, diverse patient care experiences, and supportive reflection will promote the ability to recognize and value the strengths of diversity in our community.

Professionalism

We are committed to fostering the personal transformation of our students into physicians through a thoughtful and appropriate admissions process, careful mentoring program, appropriate reward system, and a curriculum embedded in the student doctor-patient relationship. We believe that the virtues and behaviors that characterize a good doctor will redefine the personal identity of each student. We believe this transformation is a learned, continual process that must be thoughtfully designed, evaluated, and role-modeled to be successful.

Patient Centeredness

"Putting the patient first" is the organizing principle of the school. This value will create a culture of trust that fosters safe, high-quality, ethically principled, humanistic care, and we welcome transparency and public evaluation of our standards and outcomes. In all decisions that require prioritization, the patient's best interest will always be the core principle. Our ability to truly "put patients first" while being just stewards of our society's resources emanates from this trust.

Reflection

We are committed to embedding in all of our learning experiences the time and skills necessary to consciously examine, interpret and understand the thoughts and feelings that emanate from intense patient encounters. Through this process of mentored self-reflection and assessment, we ensure the development of a true learning and professional community capable of nurturing the transformation from student to physician.

Vision

We will foster the courage and intellectual climate to see beyond "what is," and we will develop the leaders to take us there. We pledge an unwavering commitment to prepare, adapt and lead our school and community toward achieving the goal of transforming health care for the betterment of humanity.

- The Mission, Vision and Values were drafted during the formation of the school between March 2008 and the summer of 2009.
- The "Diversity" value was revised in February 2010 to reflect the school's evolved approach to inclusion of diverse students, faculty, and staff.
- The mission, vision, and values remain relevant and permeate every aspect of the school's operations.

RELATIONSHIP TO PARENT UNIVERSITY

- The Hofstra North Shore-LIJ School of Medicine is formed through a full partnership between Hofstra University and the North Shore-LIJ Health System and is an academic unit of the University.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Curriculum Committee reports directly to the dean, the School of Medicine's chief academic officer.
- Working in concert with its three subcommittees (First 100 Weeks, Second 100 Weeks, and Curricular Integration and Innovation), the Curriculum Committee approves the educational program objectives, course learning objectives, core competencies, and any proposed modifications, additions, or deletions to these objectives or competencies.
- The Curriculum Committee also ensures that 1) the educational program is implemented in a manner that links the learning objectives for each course with the school's educational program objectives and core competencies, while remaining attentive to the guiding principles of the curriculum; 2) the school's assessment methods are appropriate measures of attainment of these objectives and of milestones defined by competency.
- To achieve its objectives, the committee receives formative and summative group assessment data prepared by the Office of Assessment and Educational Research. Based on the data, the Curriculum Committee recommends changes to existing courses after review with the appropriate Curriculum Subcommittee.

- The Subcommittee on Curricular Integration and Innovation reviews assessment data and makes recommendations to the overall Curriculum Committee regarding curricular design that requires change or innovation.
- The Chair of the Curriculum Committee, in consultation with the dean, has the authority to form working groups (ad hoc subcommittees) as needed.
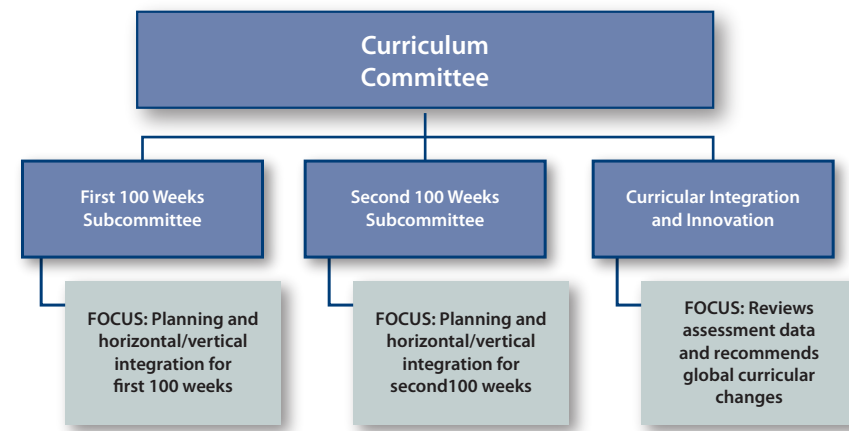
- The Office of Assessment and Education Research works hand in hand with the Curriculum Committee, its subcommittees, and the Curriculum Support office; this relationship is a key feature of the educational organization of the school.
- Through this partnership, the school: 1) develops and implements formative and summative assessments of the overall academic program, the curriculum, and each individual course; 2) collects assessment data from all key internal informants, including students, faculty, staff, and administrators; 3) collects, correlates, and analyzes external data appropriate to the assessment plan (e.g., USMLE scores, residency match results, program director surveys of graduates, AAMC Graduation Questionnaire); and 4) maps and tracks linkage of individual course objectives to the educational program objectives and core competencies of the school.
- The subcommittees of the Curriculum Committee synthesize collected assessment information into meaningful reports for review by the Curriculum Committee and the Dean's Office.
- The Curriculum Support office, which includes four course managers and a director, provides direct programmatic and operational support to the course directors.

SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- The Offices of Curriculum Support and of Assessment and Educational Research comprise what in other medical schools might be termed the Office of Education.
- At the institutional level, Graduate Medical Education and Continuing Medical Education are seated in the Office of Academic Affairs at the North Shore-LIJ Health System.
- The dean for education of the School of Medicine also leads the GME and CME program offices of the institution.

FINANCIAL SUPPORT

- Hofstra University and North Shore-LIJ Health System are equal partners in the development and ongoing operation of the School of Medicine.
- Revenue sources for the Educational Program include direct financial support from the Health System in the form of an ongoing cash commitment to support academic teaching and scholarship, as well as operational support in the domains of grants and contracts, the Feinstein Institute's research resources, and the clinical and skills training and simulation facilities of the Center for Learning and Innovation and the Center for Advanced Medicine.
- Revenue also includes state grant support, tuition revenues, and university support.
- Tuition revenues reflect the growth in student enrollment, from 40 students in the initial implementation year to 340 students in 2015-16, and an annual tuition increase of no more than 3.5 percent.
- The University and the Health System collaborate on a comprehensive $125 million, 10-year fundraising campaign, and each has committed to provide sufficient funds to cover 20 percent of the tuition costs of the student body.
- At any time, should additional unanticipated resources be required for the school to provide its students with the highest quality medical education, the two institutions will meet those needs in the spirit of partnership and with belief in the school's impact on the promotion of health for the community.
- While much of the university support derives from fundraising, endowment income, and grant funding, the commitment is unconditional.
- The university's commitment also includes medical student housing and the capital investment for 10 acres of property adjacent to the current School of Medicine education building. This is the site for construction, to begin in the spring of 2013, of a second, atrium-connected extension that will more than double the size of the current 45,000-square-foot medical school facility.
- The School of Medicine has a separate budget solely to support education.

LEARNING OUTCOMES

- Learning outcomes linked to the school's educational program objectives have been defined. A chart delineating these relationships is included as a separate document. (Appendix H)
- The learning outcomes listed on the chart include outcomes that are assessed by internal methods. USMLE scores, residency match results, program director surveys of graduates, and AAMC Graduation Questionnaire also will be utilized to assess achievement of the school's educational program objectives.

STUDENT ASSESSMENT

- The School has a robust set of formative and summative assessments of student achievement of the knowledge, skills, attitudes, and behaviors linked to its educational program objectives.
- The formative components of the assessment process include weekly scored, but not graded, essays that assess each student's ability to apply the scientific and clinical concepts learned that week; thrice weekly preceptor-, peer- and self-assessment of their preparedness for small-group, case-based learning sessions (PEARLS); and frequent, debriefed, clinical skills (communication, physical diagnosis, and critical thinking) and simulated skills development sessions with a dedicated faculty coach.
- At monthly intervals, students are given formative NBME "guidepost" questions by which to gauge their ability to demonstrate their understanding of core concepts in a multiple-choice-type format.

- Summative end-of-course assessments occur approximately every three months during dedicated Reflection, Integration and Assessment (RIA) Weeks, in which student achievement is assessed via a summative essay examinations; integrated short essay and oral Structure examinations; simulation scenarios that evaluate team-based and individual competencies; clinical skills examination using standardized "focused," as well as longitudinal, patients; and narrative prompts that promote synthesis of the biomedical science, social science, and clinical science aspects of the curriculum to date.

CLINICAL EDUCATION

- The school's fully integrated curriculum is specifically designed to break down the traditional two-by-two basic science (preclinical) and clinical model in order to involve students in clinical patient care throughout all four years of the educational program.

- The school strongly believes that this longer, developmental, patient-centered approach to achieving its learning objectives, and specifically the science and clinical skills necessary to the practice of medicine, is best achieved in the enhanced context of meaningful patient responsibility. This construct and developmental model is central to the school's mission and core values.

- To express this full integration, the school's curriculum is described as the "First 100 Weeks" and the "Second 100 Weeks."

- The clinical curriculum of the First 100 Weeks is referred to as ICE (Initial Clinical Experience), while that of the Second 100 Weeks is referred to as ACE (Advanced Clinical Experience).

- The clinical curriculum begins immediately in the first course, From the Person to the Professional: Challenges, Privileges, and Responsibilities (CPR). Within this course, students train and are certified as New York State Emergency Medical Technicians.

- As a part of this experience, students have multiple patient care experiences throughout the community, including, but not limited to, patient homes, chronic care facilities, and emergency departments.

- Students also learn how to elicit a complete history and conduct a complete physical exam, as well as learn their roles as professionals through experiences on healthcare teams. The intention is to "jump start" and highlight the importance of community and ongoing patient-centered clinical care to the learning of medicine.

- After the CPR course, ICE continues as a component of the longitudinal Patient, Physician and Society (PPS) course.

- Students are divided into small groups of four to eight learners, and each individual student is assigned to five discipline-specific, physician faculty preceptors.

- The preceptors represent five core disciplines: general medicine (internal medicine or family medicine), surgery, pediatrics, and obstetrics and gynecology.

- The students also participate in a shorter relationship with a psychiatrist toward the end of ICE.

- Students participate for a minimum of one-half day per week in caring for patients with these practitioners in primarily ambulatory, but also inpatient and other community settings. This affords students the opportunity to participate in first encounters with patients with as yet undifferentiated clinical conditions, as well as in the ongoing care of patients with already diagnosed illness.

- The third year, termed the Advanced Clinical Experience, is composed of 48 weeks, divided into trimesters, and covers the core disciplines of Internal Medicine, Surgery, Pediatrics, Ob/GYN, and Psychiatry. The structure of the year aims to keep the discipline-specific focus of traditional clerkships while integrating cumulative and longitudinal features of longitudinal integrated clerkships. The fourth year, or Preparation for Residency, encompasses four acting internships in Internal Medicine, Critical Care, Emergency Medicine, and a selected area of the student's choice; four months of electives; and two months for professional development.

- Students round out and customize their experiences with electives in clinical medicine and research.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- The CPR course, described above, lays the groundwork for the four-year approach to learning throughout which biomedical science, social science, and clinical science are blended together.

- The PEARLS (Patient-Centered Explorations in Active Reasoning, Learning, and Synthesis) paradigm, is the anchor upon which each week of instruction rotates and upon which the integrated structure of the curriculum rests.

- Structure course – a two-year, longitudinal, integrated, problem-based approach to learning normal and abnormal gross and microscopic anatomy, embryology, and imaging.

- Early clinical exposure in ICE, during which students begin to acquire the knowledge, skills, attitudes, and behaviors usually acquired during the second half of undergraduate medical education.

- RIA Weeks, with progressive coaching and skills development (see above).

- Mapping of the learning objectives of each session and each assessment to educational program objectives and eight competencies (the six ACGME competencies, plus Research and Scholarship and Population Health), with articulation of competency milestones and development of an individual student's Competency Report, or snapshot, with relation to those defined developmental milestones.

FACULTY

- Because the North Shore-LIJ Health System and Hofstra University are founding partners of the School of Medicine, we are fortunate to have a pool of more than 12,000 physicians and scientists from which to carefully select our faculty.

- Individual faculty members are recommended to the dean for appointment by the chairs of their academic departments, the medical directors of affiliate hospitals (for ICE community faculty preceptors), or by a search committee of the School of Medicine.

- The current composition of the faculty, now 1,400 strong, is approximately 80 percent full time (paid either by the University or the Health System) and 20 percent voluntary (largely ICE community preceptors).

- The challenge in recruiting faculty has been to limit faculty appointments to those who already have shown their positive contributions to medical student, resident and fellow education.

- With a robust program of faculty development and outreach to the ICE community preceptors, and with the size of the Health System itself, even recruitment of individuals to this often difficult faculty role has not been difficult.

- As the size of the medical school class grows to its full complement of 100, continuous development of this pool of faculty, rather than availability of interested participants, is an anticipated challenge.
- There have been no significant challenges in recruitment of faculty to the departments of Science Education and Molecular Medicine, the two cross-disciplinary science departments of the School of Medicine.

VALUING TEACHING

- At the time of their initial appointment, faculty members agree to donate up to 100 hours annually to undergraduate and/or graduate medical education.
- Teaching contribution factors into each faculty member's annual review and into each faculty member's re-appointment and promotion decisions.
- The School of Medicine directly compensates the physicians' group practice plan, using AAMC guidelines, for the time and effort of faculty members, such as course directors, who exceed the 100 hours/year of committed educational time that is a prerequisite for faculty appointment.

FACULTY DEVELOPMENT INITIATIVES

- The School of Medicine provides extensive training resources to all faculty members engaged in curricular design and implementation, student assessment, and assessment of educational program effectiveness.
- Activities that support development of faculty teaching and assessment skills are organized centrally by the school through its full-time associate dean for educational skills development, who also serves as director of faculty development for the Health System and thereby facilitates broad awareness of their availability.
- While organized centrally, these activities and resources are offered centrally, departmentally and individually, and are led by individuals with specific backgrounds in educational science, including School of Medicine faculty and staff as well as national leaders in medical education.
- Attention to development of these skills has continued beyond the initial formative stages of the school's development.
- Prior to assuming their teaching roles, all new faculty members participate in a required orientation program, coordinated jointly by the School of Medicine Offices of Medical Education and Academic Affairs.
- This structured, focused program addresses teaching skills and learning models, and also ensures familiarity with and linkage of these skills to the mission, goals, values, competencies, educational program objectives, infrastructure, policies, and procedures of the School of Medicine.
- All clinical faculty members participating in the integrated structure laboratories receive pre-session, active learning technique training led by the structure course directors.
- All PEARLS faculty receive a minimum of 15 hours of training, which includes direct observation and feedback by the director of the PEARLS curriculum.
- All faculty leading non-PEARLS sessions receive in-person orientation and training by the course directors and the associate deans for case-based learning and for educational skills development, as well as the offer of peer evaluation of session plan and content.
- Faculty members serving as ICE community preceptors receive between six and eight hours of preparatory training, including at least annual site visits by one of the PPS course directors, as well as group sessions during the academic year, as needed.

- ICE site directors receive the same six to eight hours of preparatory training, and meet with the associate dean for curricular integration and PPS course directors quarterly.
- All faculty members who participate as clinical skills development coaches and assessors receive between one and two hours of session-specific faculty development, led by the associate dean for curricular integration, prior to each RIA week.
- In addition to this pre-course intensive training, all members of the faculty are able and encouraged to participate in an ongoing series of faculty teaching skills development workshops. During the 2011-2012 academic year, the following workshops were offered to all faculty:

1. Active learning techniques (three sessions)

2. E-learning and innovative teaching tools (two sessions)

3. Use of the AAMC MedEd PORTAL

4. Assessing clinical reasoning

5. Concept maps and concept maps revisited (two sessions)

6. Team-based learning (two sessions)

7. Using narrative in medical education

8. Socratic questioning methods (two sessions)

9. Direct observation, coaching and feedback skills

10. Charting the road to competence with developmental milestones

11. Longitudinal integrated clerkships

12. Objective Structured Teaching Exercises (OSTEs)

13. Preparing Abstracts

14. Academic Mentoring

In aggregate, faculty attendance at these sessions exceeded 600.

- Interested faculty members also may avail themselves of Hofstra's Center for Teaching and Scholarly Excellence (CTSE), which serves as a catalyst to promote debate on all facets of pedagogy, a vehicle to review, refine and share philosophies of curriculum, teaching, assessment and scholarship across schools and disciplines, and a mechanism to enhance faculty teaching effectiveness.
- The Faculty Computing Services group of Hofstra University offers one-on-one consultation and development assistance to faculty members as they implement technological approaches to learning in their courses.
- The leadership of this group is deeply involved in the educational planning process for the School of Medicine, and the group provides a complementary skills-development resource for our faculty.
- Faculty members of the School of Medicine also are encouraged to pursue external professional development opportunities related to teaching and learning both within their specific disciplines and across the broader context of medical education.

- Current faculty members have participated in national medical educator programs such as Harvard-Macy, Stanford, and ELAM and will continue to do so in the future.

- Science Education faculty members participate in the annual meetings of the AAMC, the Northeast Group on Educational Affairs (NEGEA), and the International Association of Medical Science Educators (IAMSE) annual meeting, as well as in that organization's web seminars.

- At a discipline-specific level, faculty members are active participants in scientific societies (i.e., Anatomy, Biochemistry, Microbiology and Immunology, Pathology, Pharmacology, Physiology), through which they share innovative educational strategies.

- Like their counterparts in science education, faculty members in clinical departments are actively involved in medical education forums at the local, regional and national level through both large medical education associations, such as the AAMC, and their discipline-specific clinical associations.

- When possible, international exposure and presence are encouraged through participation in the International Association for Medical Education (AMEE), which helps teachers, doctors, researchers, administrators, curriculum developers, assessors and students stay informed of developments in the rapidly changing world of medical and healthcare professions education.

- Each of the departments of the School of Medicine has dedicated funds within its budget to support these external faculty development activities.

- In addition, the dean maintains a mission fund for discretionary allocation to specifically promote individual faculty professional career development in the area of medical education.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- Development and continual quality improvement, even on a weekly basis, of the curriculum have gone exceedingly well.

- It is clear how important the "groundwork" laid over two years by the original, multiple, interdisciplinary course design teams – their clear articulation of guiding principles, overall goals, specific learning objectives, educational program objectives, and program competencies – has been and continues to be a critical ingredient in the school's success.

- The students prepare for an active learning environment and expect our faculty to deliver it. In turn, our faculty has embraced the challenge of designing sessions that promote learning, rather than teaching, and have created a peer-fueled culture that drives and sustains that principle.

- From an organizational perspective, our "rules of operation," particularly those regarding faculty appointments and promotions and those regarding overall governance structure, have proven to be specific enough to provide reliable guidance, yet expansive enough to provide room for nuance and interpretation during a period of steep institutional growth.

- The School of Medicine has benefited immeasurably, both in tangibles and intangibles, from the partnership between the University and the Health System through which it was formed. As the School grows as an academic institution, there are areas, such as research administration and infrastructure, which might be less complex to navigate should the school have an identity separate from that of its parent institutions.

MOST PROUD OF TO DATE

- The school is most proud of having remained true, in its educational program, faculty affairs and student affairs, to the 10 values upon which it was built. With few, if any, exceptions, considerations and decisions made as the school has evolved have always kept these values in the foreground and used them as standards against which to gauge both successes and challenges.

Northern Ontario School of Medicine
Sudbury and Thunder Bay, Ontario

Lisa Graves, M.D.
Associate Dean, Undergraduate Medical Education

Rachel Ellaway, Ph.D.
Assistant Dean for Curriculum and Planning

Roger Strasser, M.D.
Founding Dean

MISSION AND VISION OF THE NEW SCHOOL

- Vision: Innovative Education and Research for a Healthier North
- Mission: The Northern Ontario School of Medicine (NOSM) is committed to the education of high quality physicians and health professionals, and to international recognition as a leader in distributed, learning-centered, community-engaged education and research.
  - NOSM will accomplish this by:
    - Being socially accountable to the needs and the diversity of the populations of Northern Ontario
    - Actively involving Aboriginal, Francophone, remote, rural, and underserviced communities
    - Leading and conducting research activities that positively impact the health of those living in Northern communities
    - Fostering a positive learning environment for learners, faculty, and staff
    - Achieving an integrated, collaborative approach to education, learning, and programming
    - Increasing the number of physicians and health professionals with the leadership, knowledge, and skills to practice in Northern Ontario.

RELATIONSHIP TO THE PARENT UNIVERSITY

NOSM functions as the faculty of medicine of two universities: Lakehead University in Thunder Bay and Laurentian University in Sudbury.

NOSM is constituted as a not-for-profit corporation with Lakehead and Laurentian Universities as the Members (like shareholders) of the corporation.

The presidents of the two universities alternate as the chair and vice-chair of the Board of Directors of NOSM.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE
The M.D. curriculum is developed through five theme committees and operationalized by three phase committees that represent the four years of the program.

THE FIVE INTEGRATED THEMES OF THE CURRICULUM ARE:

- Theme 1: Northern and Rural Health covers the teaching of cultural competency especially in relation to populations in Northern Ontario such as Francophone and Aboriginal peoples, history and geography of Northern Ontario and the history of medicine in the North, healthcare and service issues in Northern Ontario, and the challenges, benefits, and rewards for practicing medicine in Northern Ontario.
- Theme 2: Personal and Professional Aspects of Medical Practice covers professionalism, medical ethics, medico-legal issues, and historical developments related to medicine and health, including the practice of medicine and health in Northern Ontario.
- Theme 3: Social and Population Health covers concepts of health and illness, public and community health, social determinants of health, research skills, public health policy, and the organization of health care in Canada.
- Theme 4: Foundations of Medicine covers all of the basic sciences in medicine including the disciplines of anatomy, physiology, pathology, pharmacology, genetics, microbiology, and biochemistry, and immunology.
- Theme 5: Clinical and Communication Skills in Health Care covers communication skills, components of the health history and physical examination of body systems related to various aspects of the life cycle.

The five themes are integrated into every module and clerkship of the M.D. program for both teaching and assessment. The reinforcement of concepts across the themes ensures key learning outcomes are being achieved with an emphasis on medical and clinical topics.

THE THREE PHASES OF THE CURRICULUM ARE:

Phase 1

Phase 1, the first of three curriculum phases in the four-year Undergraduate Medical Education program at the Northern Ontario School of Medicine, encompasses the first two years of the program. Phase 1 is organized around 11 case-based modules (CBMs), each of which covers a major body system. In keeping with the focus of the school on preparation of students for life and practice in any Northern setting, each CBM also has either a remote, regional, rural or aboriginal setting focus. Teaching is carried out using a mix of small and large group sessions, labs and community-based clinical experiences including a four-week placement in an Aboriginal community at the end of Year 1 and two small community placements in Year 2. Learners begin to develop their clinical skills from week one of year one through weekly clinical skills sessions involving standardized patients and also undertake a longitudinal program of community and interprofessional learning.

Phase 2

Phase 2 (Year 3) of the M.D. program is dedicated to a single longitudinal integrated clerkship, the Comprehensive Community Clerkship (CCC) that takes place in medium-sized communities across Northern Ontario based in family practice. Rather than a series of clerkship block rotations, students meet patients in family practice such that "the curriculum walks through the door." Students follow these patients and their families, including when cared for by other specialists, so as to experience continuity of care in family practice. During the year, students achieve learning objectives which cover the same six core clinical disciplines as in the traditional clerkship blocks. Students live in one of 13 large rural or small urban communities in Northern Ontario, excluding the cities of Sudbury and Thunder Bay. This allows them to learn their core clinical medicine from the family practice, community perspective, while also gaining exposure to community based specialist care. Learners undertake a wide range of clinical learning activities throughout the community, as well as engaging in group teaching sessions, including virtual academic rounds (VARs) and distributed topic sessions (DTS). Learners also undertake a reflective research project based on the needs and dynamics of their host communities.

Phase 3

Phase 3 (Year 4) takes place in the academic health science centers in Thunder Bay and Sudbury and is organized around a series of specialist clerkship rotations: Surgery, Internal Medicine, Children's Health, Women's Health, Mental Health, Emergency Medicine, and Family Medicine. The integrated exposure to various specialties and subspecialties in Phase 3 provides learners with the opportunity to assess various specialties, which they may choose to pursue as career choices. There are also opportunities to experience medicine in different settings through electives.

- The curriculum is centrally managed through a detailed curriculum map that is searchable and linked to assessment.
- All curriculum development committees report to Phase (year committees) and ultimately to the Undergraduate Medical Education Committee (UMEC).
- UMEC is a standing committee of Academic Council.

SUPPORT FOR THE EDUCATIONAL PROGRAMS

FINANCIAL MANAGEMENT

- The educational program is supported by government funding and student tuition.

LEARNING OUTCOMES

- The program outcomes and objectives are defined in detail in the curriculum map. PDF reports and searches can be downloaded for offline viewing

STUDENT ASSESSMENT

- Students are assessed in the following ways:

  MCQ, OSCE, professionalism assessment, clinical assessment, essay/short answer question, research project, portfolio.

CLINICAL EDUCATION

- Year 1 immersion in aboriginal community
- Years 1 and 2 weekly clinical skills sessions and community interprofessional learning and community-based integrated clinical experiences
- Year 3 longitudinal integrated clerkship in one of 13 different Northern communities
- Year 4 transition to residency/clerkship in regional academic health science centers

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Aboriginal immersion experience in first year
- Remote and rural community clinical experiences in second year
- Longitudinal integrated clerkship in third year
- Continuity of teaching and patient contact

- Community engagement
- Social accountability
- Excellent preceptor-learner ratios
- Learners have extensive opportunities for hands-on clinical learning
- Extensive use of electronic communications, including a comprehensive digital library service, which provides learners and faculty with full access to educational resources and information any time, any place.

FACULTY

FACULTY RECRUITMENT

- NOSM has a small core nonclinical faculty with others recruited for particular teaching functions through the two universities associated with NOSM.
- Clinical faculty are recruited through active recruitment and community engagement
- Clinical faculty have adapted well to the change in roles resulting from the development of a medical school.

VALUING TEACHING

- Teaching at NOSM is valued highly and that is evident through promotions and other forms of recognition within the school

FACULTY DEVELOPMENT INITIATIVES

- A full syllabus of faculty development is in place through the school's accredited CEPD/CME office.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- Selection and admissions process that favors applicants from Northern Ontario or similar environments without sacrificing academic standards
- Integrated curriculum approach and integrated community clerkship have worked well.
- This has been successful as a result of significant faculty support for these initiatives and significant success with student results in internal and external measures.
- Early planning for the process of future curriculum review and development.
- Learners match well, perform well in national exams, and are easily identifiable as NOSM graduates.
- Many graduates returning to Northern Ontario to set up in practice.

MOST PROUD OF TO DATE

- The success of the graduates 100 percent national residency match rates in three of four years thus far.
- High levels of performance of students on national exams.
- More than 90 % of graduates have chosen generalist specialties, including 61% in family medicine.

The Commonwealth Medical College
Scranton, Pennsylvania

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Associate Dean for Curriculum

Christian Adonizio, M.D., MLA
Medical Education Coordinator

Maurice Clifton, M.D., M.S.Ed.
Senior Associate Dean for Academic Affairs

MISSION AND VISION OF THE NEW MEDICAL SCHOOL

- The Commonwealth Medical College (TCMC) will educate aspiring physicians and scientists to serve society using a community-based, patient-centered, interprofessional and evidence-based model of education that is committed to inclusion, promotes discovery, and utilizes innovative techniques.
- The college has a commitment to the 16 regional counties that it serves in northeast and north central Pennsylvania. Students are involved in activities that encourage the development of community relationships and an understanding of the cultures of families that live in the counties served by TCMC.
- TCMC is devoted to producing physicians for northeast and north central Pennsylvania who have the ability to practice medicine in a manner aimed at improving the health care of our region.
- Student research projects in community health in the M1 year and quality improvement in the M2 year support local initiatives and research interests and engage agencies involved in the health care of the local communities.

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- Curriculum management at TCMC is governed by the Curriculum Action Committee (CAC) that oversees the M.D. Curriculum, Master of Biomedical Science Curriculum, and Professional Science Master's programs. (See Figure 1 for a diagram of the committee structure.)
- Subcommittees of the CAC for the M.D. Curriculum include the M1/M2 and M3/M4 Subcommittees. The CAC also has an Educational Technology Subcommittee (ED Tech) and a Library Subcommittee that provide service to the curriculum with regard to academic and medical informatics, technological resources, and library functions.
- The M1/M2 and M3/M4 Subcommittees are charged with review and enhancement of their respective pre-clinical and clinical curricula with regard to progress toward attainment of the M.D. Program Educational Objectives, curriculum content, evaluation, and assessment.

SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- The Office of Academic Affairs (OAA), under the direction of the senior associate dean for academic affairs, is responsible for the medical education program and medical education research at TCMC.
- The Office of Curriculum Development (OCDA), lead by the associate dean for curriculum, has the

responsibility for supporting curriculum development and implementation and assessment activities. The Library, Clinical Skills and Simulation Center, Office of Evaluation and Assessment, Gross Anatomy Laboratory, and regional educational activities are housed within the OCDA.
- The assistant dean for clinical education provides leadership for the clinical years of the M.D. Program.
- Regional Education Leadership Teams, under the supervision by regional associate deans, ensure that students have comparable educational experiences at three TCMC regional campus centers. The regional associate deans report to the senior associate dean for academic affairs. (See Figure 2 – Regional Campus Educational Leadership Teams.)

FINANCIAL MANAGEMENT

- Funding for the Educational Program is provided through the Dean's Office. The Commonwealth Medical College has adequate financial resources to support the education mission.

VALUING TEACHING

- Excellence in teaching is a hallmark of the Educational Program at TCMC. Excellent teaching is expected of all TCMC faculty members for both promotion and tenure. An Educator Track recognizes the accomplishments and contributions of the basic science and clinical faculty whose primary focus is education.
- Centralized curricular management services provided by the Office of Curriculum Development and Assessment provide faculty with support for curriculum development, implementation, and assessment that encourages faculty to concentrate on course and clerkship content.
- TCMC has established an Academy of Clinical Educators (ACE) program for our full-time and voluntary clinical faculty to acknowledge excellent teaching and commitment to the delivery of our innovative curriculum.
- Faculty Development efforts for full-time and voluntary faculty focus on the development of teaching and assessment skills.
- TCMC has an impressive cadre of almost 900 clinical educators in the 16 counties serving our institution in northeast and north central Pennsylvania. This dedicated group of physicians provides the resources for patient presentations in the pre-clinical years, as well as the delivery of our M3 Longitudinal Integrated Clerkship and M4 electives and selectives.

CURRICULUM RENEWAL PROCESS

- The Commonwealth Medical College received preliminary accreditation in 2008, admitted its Charter Class in August 2009, and received provisional accreditation in 2012. The Charter Class will graduate in 2013.
- Our Curriculum Renewal Process is grounded in a culture of continuous quality improvement that is carried out through comprehensive evaluation processes that are centered in the Curriculum Action Committee and its subcommittees. The Curriculum Action Committee, faculty, and administration are committed to providing a developmentally sequenced curriculum that enables students to develop the knowledge, skills, and attitudes necessary to be physicians in the 21st century.
- TCMC full-time and clinical faculty members have a deep commitment to the process of quality improvement, which is evidenced by the satisfaction of students in both pre-clinical and clinical years.

LEARNING OUTCOMES/COMPETENCIES

- The TCMC M.D. Program Educational Objectives are grounded in the ACGME competency domains of Medical Knowledge, Patient Care, Professionalism, Interpersonal and Communication Skills, Systems-Based Practice and Practice-Based Learning and Improvement.

- The M.D. Program Educational Objectives are tracked and assessed at all levels of the M.D. curriculum through a comprehensive system of curriculum mapping and assessment activities. These objectives, including their assessment modality, are documented on every course and clerkship syllabus.

- The M.D. Program Competency Assessment Process has been under way since matriculation of the charter class. This project documents assessment by pre-clinical and clinical faculty as well as the self-assessment of students.

- The TCMC Curriculum Map and Assessment/Evaluation activities are captured through the use of the One45 educational management software.

DEVELOPMENT OF THE CURRICULUM

- Given TCMC's commitment to regional education using a longitudinal integrated educational process, the curriculum was developed with significant input from the community of regional physicians, experts in basic science, and local healthcare agencies.

- The hallmark of our clinical curriculum is the Longitudinal Integrated Curriculum (LIC) that all M3 students complete. This LIC is delivered in three regional campuses with equivalent curriculum, assessment and educational leadership structures (see Figure 2).

- A Regional Needs Assessment was completed in 2008 and 2009 that addressed healthcare issues, disparities and conditions prevalent in northeastern and north central Pennsylvania that would form the basis for medical research and educational program alike.

- All M1 students participate in small groups in a Community Health Research Project (CHRP). CHRPs are connected to issues found in the Regional Needs Assessment and are linked with local agencies.

- All M2 students complete a Quality Improvement Community Collaborative (QUICC) in small groups, which are joint projects with local clinical facilities.

- Curriculum Threads were identified by the CAC and the faculty and are longitudinally tracked throughout the four years of the M.D. Program. The threads are: Quality Improvement and Patient Safety, Bioethics, Biomedical Informatics, Interprofessional Education, Evidence-Based Medicine, Cultural Competency and Diversity, and The Family/Community Health.

TYPES OF LEARNING EXPERIENCES

- As a new school, we have seized the opportunity to implement educational pedagogy that is sensitive to the needs of adult learners.

- Less than 20 percent of the TCMC curriculum is delivered via traditional lecture format. The TCMC faculty have a deep commitment to using self-directed learning and opportunities to engage students in activities that promote the development of clinical reasoning skills throughout the curriculum.

- TCMC faculty have determined that podcasts provide students with the opportunity for self directed learning and the attainment of learning objectives in order to come to class activities prepared to interact with their faculty and colleagues and grapple with problem solving and integration of curriculum content. This approach fully engages students in the learning process.

- Clinical presentations with patients from the community, small-group learning, and other activities in the M2 year enable students to integrate their learning of the organ systems through the integration of pathology, microbiology, immunology, and pharmacology.

- Team-Based Learning (TBL) activities have been implemented in the M1-M4 years of the curriculum.

- Curriculum Threads are used to vertically integrate the curriculum and ensure that students are exposed to a variety of activities that will encourage the development of proficiency in the competencies associated with the M.D. Program Educational Objectives.

- The Doctoring Curriculum has been revised to facilitate six weeks of clinical instruction in the regional campuses (three weeks each in M1 and M2). This learning laboratory allows students to practice skills they develop in the Patient-Centered Medicine (M1) and Art and Practice of Medicine (M2) courses.

- Interprofessional Education is enhanced through TCMC's development of and participation in a regional consortium of 17 health professions programs from 10 colleges and universities in our 16-county region. M1 students currently participate in an Interprofessional Education Summit program where they complete a case with students from the other programs in heterogeneous groups with faculty facilitators from all participating programs. Last year over 650 students and 120 faculty members participated in the program. All 65 students in the M1 program attended the Interprofessional Summit along with several M3 students who also participated as facilitators.

METHODS OF ASSESSMENT

- TCMC's evaluation and assessment program utilizes formative and summative evaluations of students in all courses and clerkships.

- Narrative evaluations are provided to all students using a core-competency-based format.

- Preclinical course grading is pass/fail with the pass set at 70 percent.

- All students must pass the USMLE Step One examination in order to advance to the clinical years of the curriculum.

- M3 students participate in formative OSCE early in the Longitudinal Integrated Clerkship year with two formal summative OSCEs later in the clerkship.

- M3 students have a short-form assessment by preceptors at 90 days into the LIC year, a long-form formative assessment at six months and a summative long-form assessment at 12 months.

- Faculty members assess students continually in the competencies associated with the M.D. Educational Program Objectives over the course of the four years of the program.

- Students are assessed annually using the Jefferson Empathy Scale and the Jeffrey's 2010 Transcultural Self-Efficacy Tool-Multidisciplinary Health Provider (TSET-MHP) instrument.

CLINICAL EDUCATION

- Clinical Skills Education starts early in the first year with the Patient-Centered Medicine course, which focuses on a patient-centered history and physical exam using a variety of modalities including facilitated small groups and standardized patients. These skills are further developed in the M2 Art and Practice of Medicine course, and are integrated with basic science topics as presented in organ system blocks.

- Clinical learning in the regional sites begins in the M1 year with three weeklong community immersion experiences in the regional campuses. This learning laboratory permits students to practice skills they are developing in their Patient-Centered Medicine class in M1. Three additional weeks support the Art and Practice of Medicine course in M2. These weeks also provide students with the opportunity to work on their regional campus-based M1 Community Health Research Projects or their M2 Quality Improvement Community Collaboratives.

- Every student also has a primary care Continuity Mentor preceptor in either Family Medicine or Internal Medicine during the community weeks which allows students to develop a longitudinal relationship with a physician in the preclinical years. These Continuity Mentors continue in the M3 year as one of their Longitudinal Integrated Clerkship preceptors.

- The Longitudinal Integrated Clerkship is the centerpiece of the TCMC Clinical Education Curriculum. This LIC model offers students with an 80 percent ambulatory/20 percent inpatient curriculum in the M3 year offered at practices and hospitals throughout the 16 counties of northeastern and north central Pennsylvania. Students complete their M3 year in the disciplines of Medicine, Family Medicine, Surgery, Obstetrics/Gynecology, Pediatrics, and Psychiatry.

- Students LIC inpatient experiences include "burst" weeks in Medicine (2), Obstetrics/Gynecology (2), Anesthesiology (1) and Surgery (2).

- All students meet regionally on Friday afternoons in the M3 year for Clerkship Education Days where they complete specialty-specific instruction in each discipline along with time devoted to Communication Skills, Doctoring and Reflection, and Radiology.

- Over 400 volunteer clinical faculty members are involved in instruction in the clinical years curriculum.

- To complement the mostly ambulatory curriculum of the M3 year, students complete two Sub-Internships and additional inpatient selectives in the M4 year.

- Students participate in an Interprofessional selective in the M4 year that where they work with an integrated team supervised by other healthcare professionals. They also work alongside other healthcare professions students on an intensive basis.

- M4 students attend a weekly webinar that emphasizes reflection and reconnection to the basic sciences and the curricular threads. This innovative activity allows students to participate remotely from any location during the M4 year.

REGIONAL CAMPUSES

- All students are centered at the Scranton campus for the preclinical years (M1/M2) of medical education.

- TCMC has three regional clinical campuses in our 16-county region. The cities serving as the hubs for the regional campus structure are Scranton, Wilkes-Barre, and Williamsport.

- Students are assigned to one of these campuses for pre-clinical learning laboratory/clinical weeks in the M1/M2 years and full-time clinical education in M3/M4.

- TCMC has created a comprehensive regional education structure to ensure comparability of instruction and assessment in regional campus environment of the M3 and M4 years. Each regional team member has a dual reporting relationship to ensure a cohesive local student experience as well as a link to the central administration to ensure comparable experiences across regions.

HIGHLIGHTS OF THE PROGRAM/SCHOOL

- TCMC offers students a patient and community focused distributive model of education, set in northeastern and north central Pennsylvania on three regional campuses.

- The M1/M2 Pre-clinical years afford students the opportunity to learn basic science, develop and practice clinical skills, and complete community-based and quality improvement research projects tied to a Regional Needs Assessment for the 16 counties TCMC serves.

- The M3 year extends the Longitudinal Integrated Clerkship to all students, which provides an integrated educational experience that is community focused and taught by more than 400 dedicated volunteer clinical faculty.

- The immersion in community life and preceptor's practices in the M3 year enables students to experience the life of patients and their families in the 21st century.

- Innovative curriculum methods permit students to develop the competencies associated with the M.D. Educational Program Objectives.

LESSONS LEARNED AND SOURCES OF PRIDE

Although building a new medical school is a huge challenge, we have been able to accomplish a great deal in the past five years:

1. We have been very successful at integrating ourselves with the community. We were built by the community and have as our mission to serve our community. We have had tremendous support from the medical community in terms of volunteer clinical faculty for teaching clinical medicine throughout the four years of the curriculum, regional community agencies who have partnered with us in our Community Health Research Projects, to the general community that has been incredibly welcoming to our students. The local colleges and universities have also been marvelous partners; we have an interprofessional education day that brings together over 500 learners and facilitators from 11 institutions and 16 different professions, and we are building several collaborative relationships for combined academic programs.

2. Our students are our best resource and ambassadors. A substantial number are from the region, or have family in the region and are an incredible source of pride to the community. The students who are from outside our region have integrated very well into the area. All the students have been very helpful in working with the faculty and administration during the implementation of the curriculum to ensure it is of high quality.

3. Our Medical Science Building is a state-of-the-art, functional, beautiful facility with ample student study areas, basic science research spaces that are designed to promote collaboration, and a 17-room simulation center. Our gross anatomy laboratory is equipped with the latest technology, and our small and large group educational areas and community meeting areas facilitate student-faculty interaction and learning.

4. Our pipeline efforts have been hugely successful, providing a seamless pathway from high school through community and four-year colleges for economically disadvantaged students in northeast Pennsylvania who are interested in careers in health or health-related professions. Made possible by a Department of Health and Human Services, Health Career Opportunities Program grant, the Regional Education Academy for Careers in Health – Higher Education Initiative (REACH-HEI) has served over 400 students in this short time.

5. Our integrated curriculum using active-learning techniques not only provides a comprehensive undergraduate medical education, but collaboration across all the departments provides a robust learning environment that will promote lifelong learning.

MOST PROUD OF TO DATE

- We have been able to remain true to our mission, deepening our focus and clarifying our goals with the addition of each new cohort of students.

- The TCMC faculty, staff and administration all came to this institution because they had a dream that medical education could be different in the 21st century. We live this dream every day through the selfless dedication of this gifted group of individuals.

- We have implemented the largest Longitudinal Integrated Clerkship curriculum in the world across three geographically distinct regions with very positive results. Our charter class of 2013 and their faculty preceptors have reported extremely high satisfaction with the model and the students have had excellent results to date on the USMLE.

- Our comprehensive evaluation and assessment program has been extremely useful in promoting continuous curricular improvement and was praised by the LCME.

- Our ability to integrate our learning environment with the local community through projects linked to local agencies has provided students with a learning lab environment and promoted a scholarly approach to solving community health problems.

- We continue to serve and dedicate ourselves to our institutional mission to serve the 16 counties in northeastern and north central Pennsylvania.
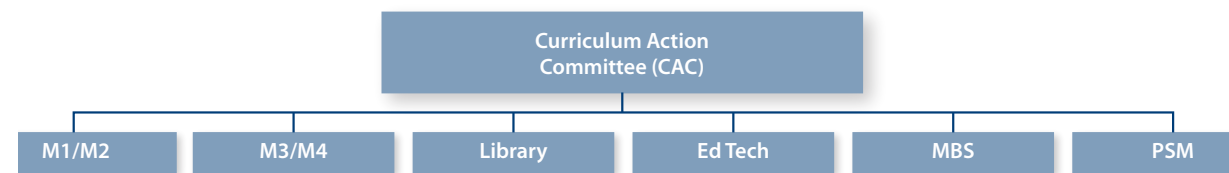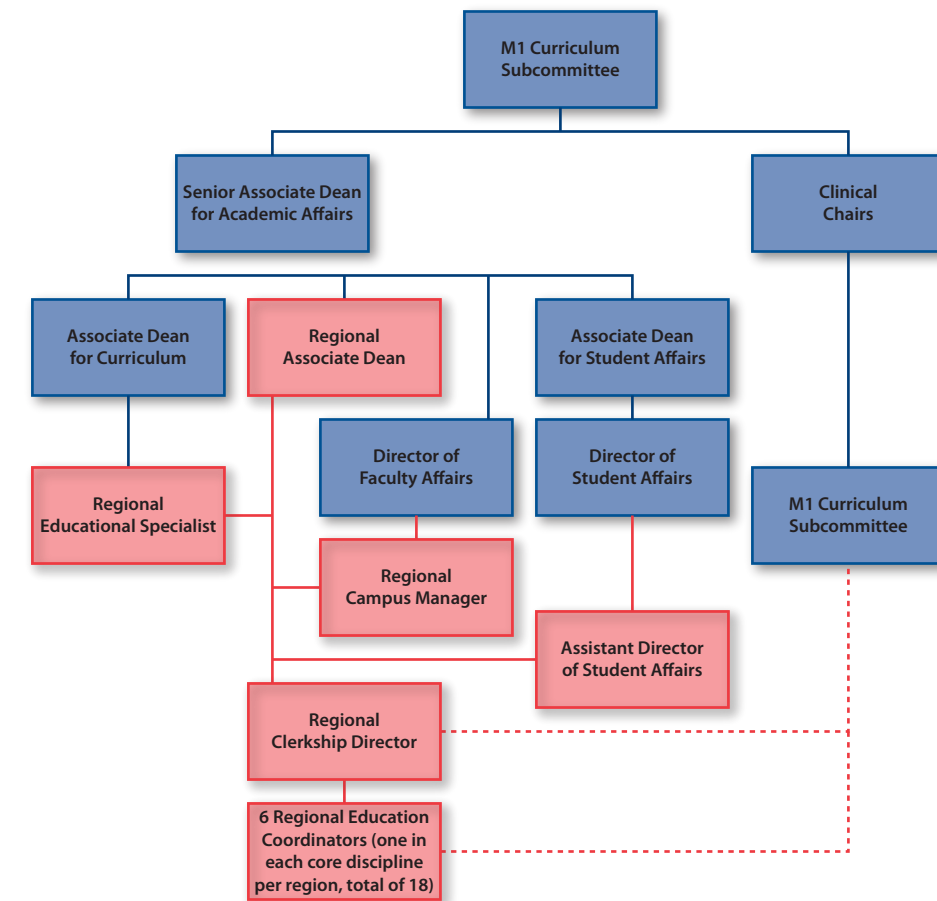
FIGURE 1: CURRICULUM MANAGEMENT STRUCTURE

FIGURE 2: REGIONAL CAMPUS LEADERSHIP TEAMS

University of South Carolina School of Medicine Greenville
Greenville, South Carolina

Spence M. Taylor, M.D.
Senior Associate Dean for Academic Affairs

Jerry R. Youkey, M.D.
Founding Dean

MISSION AND VISION FOR THE NEW SCHOOL

THE STATED MISSION AND VISION FOR THE SCHOOL ARE:

Educate health professionals to care compassionately, teach innovatively, and improve constantly through health services research.

VISION STATEMENT:

Educate and advance knowledge to transform health care for the benefit of the people and diverse communities we serve.

The University of South Carolina School of Medicine Greenville (USCSOM Greenville) was created with the worldview that current healthcare delivery is not sustainable and that reform, including the reformation of contemporary medical education, is needed.

GOALS

In order to fulfill its mission and vision, USCSOM Greenville adopted the following goals:

a. To educate physicians competent in medical knowledge, patient care and technical skill, who are champions of collaborative interpersonal communication, professional responsibility, and ethical behavior.

b. To educate physicians who take responsibility for the healthcare needs of their communities, are responsive to transformation that improves patient-centered care and who understand the interdependent relationship of the physician, the hospital and all other healthcare providers.

c. To create a School of Medicine capable of meeting the changing societal healthcare needs.

d. To educate physicians committed to evidence-based, cost-effective care standardization, quality, patient safety, and ongoing comparative effectiveness research.

To date, there has been very little change to the stated mission of the school. All aspects of the school were crafted through the lens of the following 18 broad guiding principles:

1. USCSOM Greenville will be responsive to the changing healthcare needs of our society.

2. USCSOM Greenville will strive to consider the needs of the students, faculty, and administration in a manner which enhances the stature of both the University of South Carolina (USC) and the Greenville Hospital System (GHS).

3. USCSOM Greenville understands that healthcare delivery is constantly evolving and that its physician graduates should facilitate and advocate transformation that improves care provision.

4. USCSOM Greenville will be integrated with all aspects of the GHS delivery system.

5. USCSOM Greenville will graduate physicians who understand and participate in research that compares the relative clinical effectiveness and outcomes of various treatments.

6. USCSOM Greenville supports development of a healthcare workforce that reflects future societal needs and the diversity of the communities served.

7. USCSOM Greenville will educate physicians to be champions for patient safety, standardization, evidence-based care, and quality; responsive to the medical needs of their community; sensitive to the societal cost of medicine; activists for the education of the future healthcare workforce; and practitioners who care for all patients regardless of race, social stature, or ability to pay.

8. USCSOM Greenville students will practice patient-centered care that values the interdependent roles of healthcare providers and facilities in service to their patients.

9. USCSOM Greenville will produce physicians competent not only in medical knowledge, technical skill, and patient care, but also in compassion, collaborative interpersonal communication, professional responsibility, and ethical behavior.

10. USCSOM Greenville believes that candidates for medical school who value professionalism and possess exceptional interpersonal communication skills can be prepared, identified, and selected to become successful practicing physicians.

11. USCSOM Greenville will establish a learning environment that emphasizes the relationship between undergraduate medical education and the real world of patient care.

12. USCSOM Greenville strives to alleviate the cost of medical education as a significant barrier to student matriculation and graduation, or as a factor in the selection of a career specialty.

13. USCSOM Greenville utilizes policies and procedures that synergistically combine the academic virtues of USC with the operational efficiencies of the GHS health system to the benefit of its students, faculty, and staff.

14. USCSOM Greenville faculty will emphasize and demonstrate the clinical import of the materials that they teach.

15. USCSOM Greenville faculty selection, development, and promotion processes will favor those committed to their profession as a calling, who view their teaching ability as a gift and a privilege.

16. USCSOM Greenville graduates will be fully prepared and highly competitive to enter graduate medical education.

17. USCSOM Greenville appreciates that access to medical information is constantly changing and that educational focus must continually emphasize methods to optimally acquire the most current knowledge.

18. USCSOM Greenville will utilize educational resources, infrastructure, and technology in a fiscally responsible manner, incorporating external resources in the education of healthcare students when advantageous.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

RELATIONSHIP TO THE PARENT UNIVERSITY

- While USCSOM Greenville is separately accredited by the LCME as a four-year medical education program, it is also accredited by the Southern Association of Colleges and Schools as a college of the USC Columbia campus. USCSOM Greenville is located about 100 miles from the USC Columbia campus.

- The dean is dually employed and reports to the USC provost for academic integrity of USCSOM Greenville and to the GHS president and CEO for development and maintenance of integration between USCSOM Greenville and GHS.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Curriculum Committee is charged with the development and oversight of the content, structure, and pedagogy of the curriculum leading to the M.D. degree, and for ensuring that students learn the knowledge, skills, attitudes, and behaviors necessary for the successful practice of medicine.

The following organization chart shows the structure of management for the curriculum of the USCSOM Greenville program.
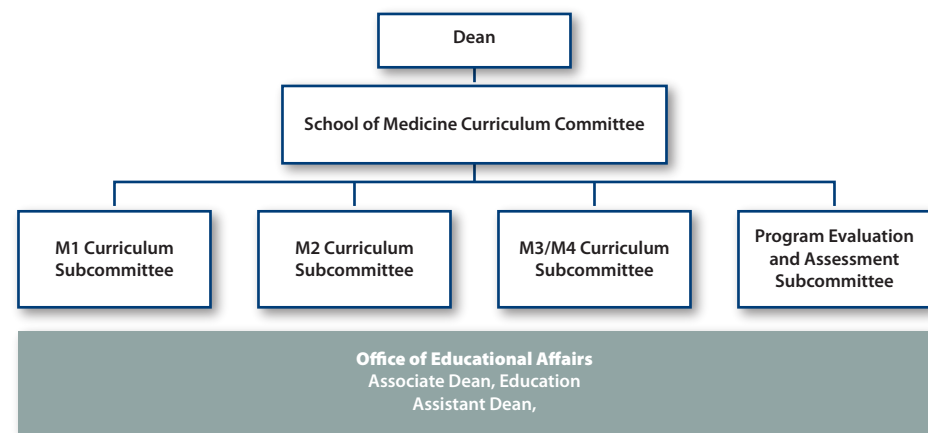
- The associate dean for education and the Curriculum Committee are responsible for the successful design, implementation, and assessment of the curriculum.

- The associate dean for education leads the curriculum design and review processes and provides necessary support to the Curriculum Committee, which is advisory to the dean.

- The associate dean for education is responsible for ensuring that the design of the curriculum achieves institutional standards, is aligned with the educational program objectives, and adheres to LCME accreditation requirements. He/she is responsible for a comprehensive program evaluation of all modules, clerkships, and electives, and the maintenance of an online evaluation system. He/she collaborates with faculty in the development of module/clerkship objectives and syllabi and the design of evaluations and student assessments, and provides advice to the senior associate dean for academic affairs and diversity with regard to areas of support and faculty development.

- The associate dean for education is responsible for managing the Office of Educational Affairs, which provides direct support to the faculty for delivery and assessment of curricular content.

- Within the Office of Educational Affairs, the director of assessment manages and delivers all assessment and evaluation measures, gathers and analyzes outcomes data, and provides reports to the respective modules, academic year subcommittees, and the Program Evaluation and Assessment Subcommittee.

- The Curriculum Committee has the responsibility to review, advise, and make policy recommendations to the dean on matters related to the design of the undergraduate medical education program.

SUPPORT FOR THE EDUCATIONAL PROGRAMS

- USCSOM Greenville receives resources as directed by a Foundational and separate Operational Agreement between USC and GHS.

- Financial resources are discrete, dedicated solely to the Greenville campus and are not co-mingled with other university funds (to include the USCSOM Columbia).

- The Educational Program is supported as part of the USCSOM Greenville budget. In planning the school, GHS and USC crafted a comprehensive financial plan to fund and fully support the USCSOM Greenville. Both parties are committed to assuring that the school will achieve its full potential as a high quality academic institution integrated with a robust healthcare delivery system.

- The fundamental principle behind the comprehensive financial plan was to create a model that does not rely on recurring state appropriations, nor depend on raising student tuition for sustainability. As such, USCSOM Greenville will not seek or receive South Carolina state appropriations.

- USCSOM Greenville is supported by conventional revenue sources, including purchased services revenue from the hospital, research grants and other contracts, philanthropy, and student tuition. In addition, GHS is contractually obligated to provide any amount necessary to balance the annual budget of USCSOM Greenville. GHS is financially sound as evidenced by its AA–, AA, and A1 ratings from Standard & Poor's, Fitch, and Moody's. GHS has total operating revenues in excess of $1.4 billion and $1.6 billion in total assets.

Learning objectives are based on the six general core competencies endorsed by the Accreditation Council for Graduate Medical Education (ACGME) and are shown in Appendix I.

In addition, module and session level objectives have been developed in preparation for our charter class, which entered in August 2012

STUDENT ASSESSMENT PROGRAM

- To date, both formative and summative cognitive and practical assessments have been completed for the curriculum.

- Small-group team-based and case-based assessments have been completed.

CLINICAL EDUCATION

- USCSOM Greenville is located on the Greenville Memorial campus, the heart of the 1,268-bed, five-campus GHS health system.

- The M1 and M2 biomedical sciences will be taught in a new 90,000-square-foot Health Science Education Building located on the campus of the 768-bed Greenville Memorial Hospital.

- Of the more than 900 GHS employed providers, more than 400 physicians organized in 11 clinical/academic departments (which include 15 ACGME accredited or freestanding residencies and fellowships) have faculty appointments and will deliver the M3 and M4 curriculum.
- Interprofessional education will be stressed, utilizing shared educational sessions with students from the South Carolina College of Pharmacy and other health professions.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- The educational program will feature early clinical immersion and quick adaptation of clinical principles to the preclinical years.
- The students begin by completing an Emergency Medical Technology curriculum and become certified EMTs.
- The integrated biomedical sciences curriculum will be taught in close proximity to the clinic and will feature clinical correlation utilizing the 10,000-square-foot GHS regional simulation center/simulated patient clinic located in the Health Sciences Education Building.
- Students will be taught using information technologies utilized in the hospital to include the same electronic medical record and CPOE system.
- Learning objectives (Appendix I) have been organized according to the ACGME six core competencies to acquaint and seamlessly transition the students into postgraduate training.

FACULTY

FACULTY RECRUITMENT

- USCSOM Greenville capitalized on the existing clinical faculty to staff committees and begin curricular development. These faculty, organized into 11 clinical departments, have provided a stabilizing base in which to attract biomedical sciences faculty.
- The biomedical sciences faculty have been recruited and hired into a single Biomedical Sciences Department.
- The chair of the Biomedical Sciences Department was nationally recruited utilizing a search firm and hired in early 2012. Remaining faculty have been recruited following university policy, using a search committee comprised of both biomedical sciences and clinical faculty. As of May 2012, approximately one dozen biomedical sciences faculty have been recruited
- While recruitment of biomedical sciences faculty has generally gone well, there continues to be an inherent conflict between the type of faculty needed to deliver an integrated biomedical sciences curriculum and the type of faculty traditionally considered acceptable to join a research university such as USC.
- The M1 and M2 curriculum calls for faculty willing to devote the majority of their time to teaching, pursuing scholarly activity in the field of educational research. However, most research universities consider scholarly activity to consist of traditional extramural, grant-supported basic research. This conflict has made faculty recruitment a more deliberate process and promises to be a potential barrier for promotion and tenure going forward. To date, compromises have been made and a qualified biomedical sciences faculty has been assembled.
- The national housing market has made relocation significantly challenging.

VALUING TEACHING

- USCSOM Greenville was founded on the principle that teaching would be valued as demonstrated by the 15th Guiding Principle (see above).
- The Biomedical Sciences Department consists primarily of faculty whose predominate mission is to teach.

FACULTY DEVELOPMENT INITIATIVES

- In 2007, Regional Associate Dean Jerry Youkey appointed a faculty leader to develop a continuing education program devoted to enhancing the teaching and research skills of the faculty. The program features five different initiatives aimed at leadership, scholarly academic pursuit, basic pedagogy skills, and master teaching.
- The most popular initiative is a continuing lecture series of national education thought leaders who present six times a year. These faculty development offerings resulted in a written commendation during the LCME Preliminary Accreditation site visit.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL AND WHY

- Many things have worked favorably to enable the USCSOM Greenville. Undoubtedly, the 20-year history as a regional campus of USCSOM contributed greatly.
- Much of the needed infrastructure to begin a medical school was in place to include over 600 clinical faculty, GME programs, faculty development infrastructure, student services, and parent university infrastructure and resources experienced with supporting a medical school.
- A shelled 90,000-square-foot building, originally built to support education and research on the GHS campus, was reprogrammed to support the M1 and M2 curriculum for the SOM.
- The support and scale of the GHS health system is a major strength.

LESSONS LEARNED

- The biggest challenges have been in the areas of communication, stakeholder engagement, and relationship building. When beginning the feasibility study process, we focused predominantly on resource availability, facilities, educational philosophy, and finances. While these areas are important and presented significant challenges, none proved as difficult as the challenges we faced with communication and stakeholder alignment.
- State, local and university politics proved to be most difficult to manage. We would advise new schools to adopt a communications and stakeholder engagement plan early on and to devote the appropriate time and energy in these areas.

MOST PROUD OF TO DATE

- There is much of which to be proud—the biomedical sciences teaching facilities (built to meet curricular specifications), the close working relationship with the GHS healthcare delivery system, the attainment of LCME Preliminary accreditation and the support of the Greenville community.
- The culture that has developed among the founding administration and faculty. A culture of collegiality, collaboration, mutual support, and achievement has generated a synergistic esprit decor among the M.D.s and Ph.D.s capable of constructive problem solving and accomplishment.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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Texas Tech University Health Sciences Center Paul L. Foster School of Medicine
El Paso, Texas

David J. Steele, Ph.D.
Senior Associate Dean for Medical Education

Jose Manuel de la Rosa, M.D.
Founding Dean and Vice President for Health Affairs

MISSION AND VISION FOR THE NEW SCHOOL

Mission: The mission of the Texas Tech University Health Sciences Center Paul L. Foster School of Medicine (PLFSOM) is to provide outstanding education and development for a diverse group of students, residents, faculty and staff; to advance knowledge through innovation and research; and to serve the needs of socially and culturally diverse communities and regions.

Vision: Texas Tech University Health Sciences Center Paul L. Foster School of Medicine will promote wellness and relieve human suffering through excellence in healthcare, intellectual innovation, and service to the border region.

GOALS:

1. To provide a medical education that is consistent with modern scientific principles, supportive of strong ethical principles, sensitive to the needs of the community, and committed to excellence.

2. To produce excellent graduate physicians who embody the principles of the medical school.

3. To promote new knowledge in the medical sciences through strong research programs that investigate not only the biological bases of medicine, but also the humanistic, cultural, and health services components of medicine.

4. To ground its medical education program in an environment of health services that serve as a model of excellence within the community, state, and nation.

5. To recruit outstanding young people to the pursuit of careers in the disciplines of medicine.

6. To serve as an educational and referral resource to practicing physicians and other healthcare professionals within the community and region.

7. To promote educational achievement among the youth of the Border region.

The faculty and administration of PLFSOM recently completed a comprehensive strategic planning process tied explicitly to these mission, vision, and goals. This process resulted in several new initiatives in all seven goal areas that will guide development for the next several years.

RELATIONSHIP TO THE PARENT UNIVERSITY

- Paul L. Foster School of Medicine is one of seven schools, two of which are medical schools, in the Texas Tech University Health Sciences Center.
- Each medical school has its own dean and administrative structure.
- The deans of each school report to the HSC president.
- Each of the two medical schools is independently accredited and is free to establish its own curriculum, mission and vision, and operating policies so long as they are consistent with those of the Board of Regents and the parent university.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- Central, coordinated control of the curriculum resides with the Curriculum and Educational Policy Committee (CEPC), which reports to the dean and communicates regularly with an elected Faculty Council.
- Required course and clerkship committees report to the CEPC through their respective directors. In addition, a standing Evaluation Committee reports to the CEPC on issues related to student assessment and program evaluation.

PAUL L. FORSTER SCHOOL OF MEDICINE CURRICULUM MANAGEMENT ORGANIZATIONAL STRUCTURE
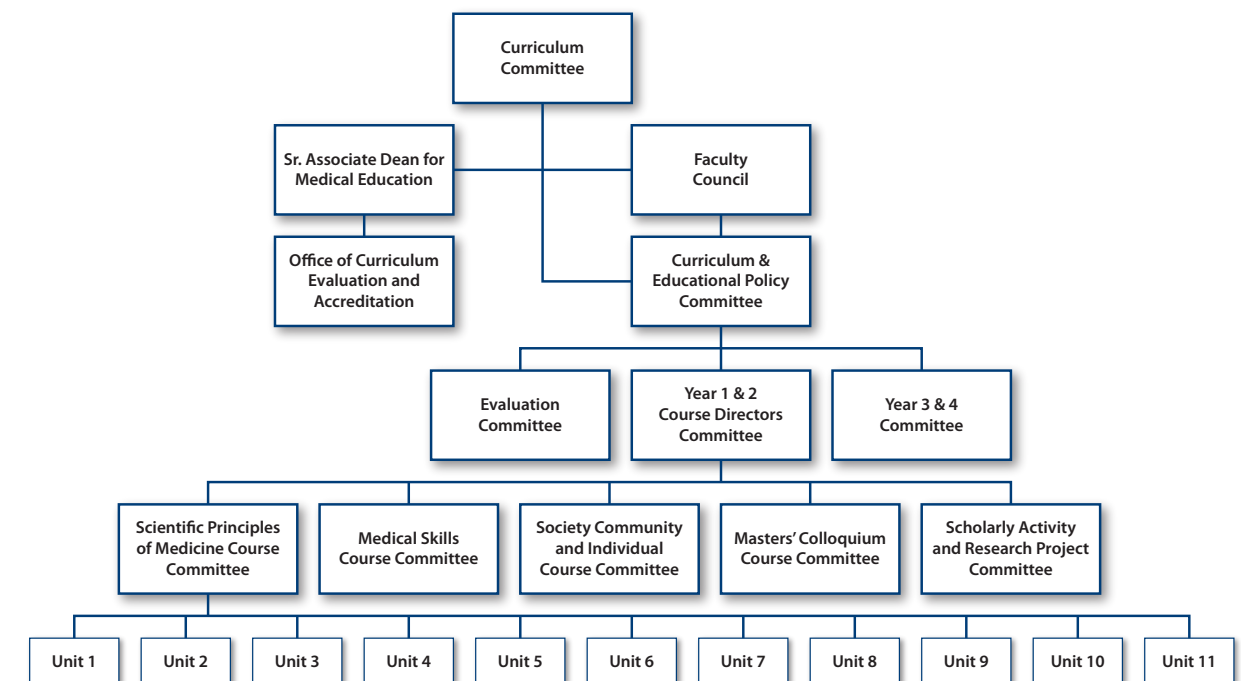
OFFICE OF EDUCATION

- The Office of Curriculum, Evaluation, and Accreditation (OCEA) is responsible for supporting the development, implementation, and evaluation of the curriculum and for facilitating the assessment of student performance.
- Staff of the office report to the senior associate dean for medical education. The office consists currently of the director, a director of assessment and evaluation, a senior research analyst, a support staff of four coordinators, and a unit manager.

FINANCIAL SUPPORT

- As a new medical school the state legislature is supporting the school through a multiyear special appropriation.
- State "formula" funding will be initiated once the school achieves full capacity of students after 2013.

- Additional revenues are provided from the clinical practice plan as determined by the dean.
- We are implementing an Educational Value Unit (EVU) system to direct state funds to clinical departments in proportion to the time their faculty contributes to medical student education over the four years of the curriculum. EVUs are based on role (e.g., clerkship director) and contact time as monitored by the OCEA.

LEARNING OUTCOMES

- The institution has identified 31 curricular goals or general learning objectives organized by the ACGME competency domains: Patient Care, Medical Knowledge, Professionalism, Interpersonal Communication Skills, Systems-Based Practice, and Practice-Based Learning. (See Appendix J for a listing of the 31 institutional learning goals.)

STUDENT ASSESSMENT PROGRAMS

- Weekly formative examinations based on the previous week's instruction
- Examinations employing USMLE style questions linked to learning objectives
- OSCEs throughout the first three years of medical school including comprehensive OSCEs at the end of years two and three
- Small-group performance assessments
- Rubric-based assessment of presentations and writing
- Comprehensive end of Year 1 examination utilizing NBME Custom Examination Service
- NBME Comprehensive Basic Science examination (Year 2)
- NBME Shelf examination for all required Year 3 clerkships
- Annual "Progress Test" assessing diagnostic reasoning and clinical data interpretation
- Longitudinal survey to assess attitudes, beliefs, and values related to the psychosocial and cultural issues

CLINICAL EDUCATION

- Early clinical experiences occur in community-based clinics committed to a model of community-oriented primary care. These clinics not only provide medical care to individual patients but also are committed to advocacy and community outreach.
- Clinical training during the third and fourth years is provided mainly at University Medical Center and El Paso Children's Hospitals—both are community hospitals. Additional affiliations include William Beaumont Army Medical Center and El Paso Psychiatric Center. Other affiliations are being finalized.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- Scientific Principles of Medicine—Provides clinically relevant basic science instruction offered through system-based blocks and taught in the context of approximately 100 clinical presentations (e.g., the patient with abdominal pain) illustrating how experienced clinicians approach these presentations in a "scheme inductive" manner. These clinical presentations serve as a platform for teaching basic science content and principles necessary for understanding the pathophysiology and disease processes underlying the clinical condition. This is a two-year longitudinal course.
- A Medical Skills course that is highly integrated with the Scientific Principles of Medicine course. Medical Skills is taught in a state-of-the-art clinical skills and clinical simulation center consisting of 10 fully equipped examination rooms, partial task trainer laboratories, high tech human body simulators, and virtual reality applications.

- A commitment to exposing students to community medicine and a population perspective through a two-year Society, Community, and the Individual course consisting of the following conceptual threads: epidemiology, biostatistics, culturally appropriate care, community, family, environmental and occupational health, and Spanish language instruction. This course is built around the ecological model of health and places heavy emphasis on the social determinants of health and health disparities.
- A dual M.D./M.P.H. degree option in cooperation with the University of Texas Health Sciences Center Houston School of Public Health is available for students who have an interest in integrating clinical medicine and public health.
- The establishment of learning communities ("Colleges") led by "Masters," specially recruited senior basic science and clinician faculty members, who provide mentorship, advising, and who teach a weekly course entitled the Masters Colloquium that stresses issues related to professionalism, critical thinking, controversies in medicine, medical ethics, and critical appraisal of the literature.
- Semi-integrated clerkships in Year 3 in which two disciplines (i.e., Internal Medicine and Psychiatry, Family Medicine and Surgery, and Obstetrics-Gynecology and Pediatrics) share a 16-week block of time. During that block students gain clinical experience in both disciplines and participate in shared didactic experiences, joint rounds, integrated projects, etc.
- All students are required to complete a faculty mentored Scholarly Activity or Research Project (SARP) as a condition of graduation. For the purposes of this requirement, scholarship is defined broadly to consist of basic, clinical, and translational research; epidemiological and population-based studies; community-oriented participatory research; medical education projects; and the medical humanities.
- Please see curriculum diagrams on the following two pages.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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Curriculum Overview: Year 1

JUL	AUG				DEC	JAN		MAY
SCI	SPM UNIT 1 Health & Disease	SPM UNIT 2 Musculo-Skeletal/ Derm	SPM UNIT 3 GI System		SPM UNIT 4 Liver and Hematology		SPM UNIT 5 Cardio/Pulmonary	CEYE
	Medical Skills							
	Master's Colloquium							
	Society, Community and the Individual							

SPM	**Scientific Principles of Medicine**
SCI	**Society, Community, and Individual**
CEYE	**Comprehensive End of the Year Exam**

Curriculum Overview: Year 2

AUG			DEC	JAN			MAY	JUN
SPM UNIT 6 CNS/ Special Senses	SPM UNIT 7 Renal System	SPM UNIT 8 Endocrine System	SPM UNIT 9 Reproductive System	SPM UNIT 10 Mind & Human Development	SPM UNIT 11 Integration of Systems	End of Year OSCE and CBSE	Self Study and USMLE Step 1	
Medical Skills								
Master's Colloquium								
Society, Community and the Individual								

OSCE	**Objective Structured Clinical Examination**
CBSE	**Comprehensive Basic Science Examination**

TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
Paul L. Foster School of Medicine

Year 3 Integrated Block Curriculum

16 Weeks	16 Weeks	16 Weeks

- Internal Medicine
   - General
   - Selective (2 weeks)
 - Psychiatry
	- Obstetrics-Gynecology
	 - Pediatrics
		- Family Medicine-Pediatrics
		 - Surgery
		   - General (6 weeks)
		   - Selective (4 weeks)

- Integrated Teaching and Learning Experiences	- Integrated Teaching and Learning Experiences	- Integrated Teaching and Learning Experiences
- Longitudinal Selective Psychiatry	- Maternal/Fetal/Neonate Experience	- Longitudinal Selective in Family Medicine

Threads: Geriatrics, Basic Sciences, Ethics, Professionalism, EBM, Patient Safety, Pain Management, Chronic Illness Care, Palliative Care, Quality Improvement, Communication Skills, Diagnostic Imaging, Clinical Pathology, Clinical and Translational Research.

TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER
Paul L. Foster School of Medicine

Year 4 Curriculum

4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	4 weeks	1 weeks
Sub Internship	Critical Care	Emergency Medicine	Neurology	Elective	Elective	Elective	Flex Scheduling	Capstone

Threads: Geriatrics, Basic Sciences, Ethics, Professionalism, EBM, Patient Safety, Pain Management, Chronic Illness Care, Palliative Care, Quality Improvement, Communication Skills, Diagnostic Imaging, Clinical Pathology, Clinical and Translational Research.

FACULTY

FACULTY RECRUITMENT METHODS

- National advertising in appropriate professional journals
- Networking

CHALLENGES ENCOUNTERED RECRUITING FACULTY

- Geography
- Recruiting experienced faculty members who are willing to "re-think" their approach to teaching the content of their fields of expertise in a "totally" integrated framework determined by organ system and clinical presentation.

VALUING TEACHING

- The Department of Medical Education is an academic department consisting of 26 full-time basic science educators and physician educators. The members of this department are fully supported for their educational roles and devote 70 to 80 percent time and effort to the development and delivery of the curriculum. The remaining 20 to 30 percent is devoted to maintaining their credentials as scholars and as practicing clinicians.
- The Promotion and Tenure Guidelines recently approved the faculty of the School of Medicine acknowledge the value of teaching and educational contributions. Faculty members can be promoted and achieve tenure on the basis of their educational contributions and achievements.
- The development of an Educational Value Units system to allocate state funds to departments in proportion with the contributions of that department's faculty to the educational mission.

FACULTY DEVELOPMENT INITIATIVES

- The associate dean for faculty affairs and development has implemented a 90-hour, six-month faculty development course that is well subscribed to by the faculty.
- The associate dean for faculty affairs and development has also implemented a formal yearlong mentoring program pairing experienced and successful faculty members with junior and early mid-career faculty members. The focus of this program is assisting faculty to be academically productive and to enhance success in promotion and tenure. Mentor and mentee are required to submit monthly reports documenting meetings and progress.
- The associate dean for research/chair of the Department of Biomedical Sciences hosts a number of research-related faculty development activities. Several of the clinical departments also support faculty development.

LESSONS LEARNED; SOURCES OF PRIDE

WHAT HAS WORKED WELL

- We have created a highly integrated, clinically relevant curriculum.
- Each week of instruction in Years 1 and 2 is initiated with a physician faculty member discussing a "scheme inductive" approach to one of about 100 "clinical presentations" (e.g., the patient with chest discomfort).

The basic science content for the week consists of information that students need to master to understand the biomedical processes underlying this clinical presentation. The clinical scheme thus determines what basic science topics are covered and when. At the end of the week, students meet in physician-led small-group case discussion sessions in which they analyze cases based on the scheme presented at the beginning of the week with the goal of arriving at the most appropriate diagnosis.

- During this same period of instruction, students learn to take appropriate focused histories and to perform appropriate focused physical examinations on patients presenting with the clinical problems being addressed that week, thus providing additional opportunities for integrated learning and application.
- The integrated approach works in large part because we have a group of basic science and clinician faculty members who are willing to be flexible and collaborative in their teaching and because the faculty meets virtually weekly to jointly plan the program and make coordinated decisions about content, depth, and sequence.

WHAT HAS WORKED LESS WELL

- When the scheme inductive clinical presentation curriculum was designed, our intention was that students would revisit the clinical schemes, described briefly above, during the clerkship phase of our curriculum both as a review and as an opportunity for elaboration. This has proven to be difficult because most of the residents and many of the faculty in the third and fourth years are unfamiliar with the approach being taken to clinical reasoning in Years 1 and 2. Faculty development has proven to be logistically difficult. However, we are making progress and we recognize that we are engaging in a process of culture change that takes time, tact, and patience. The clerkship directors are committed to integrating the schemes into their respective programs.
- Although education is valued and included in P and T guidelines, reaching agreement about the metrics to use in assessing educational contributions and defining the scope of tenure-earning scholarship remains a challenge.

MOST PROUD OF TO DATE

- Student performance! The charter class achieved a first time pass rate of 97 percent on USMLE Step 1 with an average score of 224 and have been doing very well on their clerkship shelf exams—scoring at or above the national average in all disciplines. Our second class achieved a 98 percent first-time taker pass rate with very nice scores as well. The students are performing very well clinically as well.
- The first U.S. medical school to have conversational and medical Spanish as a required component of the curriculum throughout the first and second years (with ample opportunities to practice in the clerkship years).
- The school has been well received and supported by the El Paso community and is having an impact on education at all levels through its outreach and pipeline programs designed to expand educational opportunities.

A Snapshot of the New and Developing
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AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

Virginia Tech Carilion School of Medicine
Roanoke, Virginia

Terri Workman, J.D., M.B.A.
Principal Business Officer

Richard Vari, Ph.D.
Associate Dean for Basic Science Education

Bruce Johnson, M.D.
Associate Dean for Faculty Affairs

Stephen Workman, Ph.D.
Associate Dean for Admissions and Administration

Mark Greenawald, M.D.
Associate Dean for Student Affairs

Michael Friedlander, Ph.D.
Senior Dean for Research

David Trinkle, M.D.
Associate Dean for Community and Culture

Daniel Harrington, M.D.
Senior Dean for Academic Affairs

Cynda A. Johnson, M.D., M.B.A.
President and Founding Dean

MISSION AND VISION FOR THE NEW SCHOOL

Vision: The Virginia Tech Carilion School of Medicine (VTCSOM) will be the first choice of a diverse class of medical students who are seeking an educational experience grounded in inquiry, research, and discovery, set in an environment of interprofessionalism and cultural competency.

Mission: To develop physician thought leaders through inquiry, research and discovery, using an innovative curriculum based upon adult learning methods in a patient-centered context. Our graduates will be scientist physicians with outstanding clinical skills and significantly enhanced research capabilities who will remain lifelong learners. They will have an understanding of the importance of interprofessionalism to enable them to more effectively lead a modern healthcare team.

VALUES:

- VTCSOM values the concept of patient-centered care, manifested in physicians who are receptive and expressive communicators, developing patient plans grounded in evidence-based medicine with an emphasis on safety, quality, professionalism, and cultural competency.
- VTCSOM values the science of medicine and its application to the resolution of clinical problems, and the development of self-instruction skills that keep physicians informed regarding developments in medical sciences.

- VTCSOM values continuous improvement of quality in its broad application to clinical care and to the development of new knowledge.
- VTCSOM values communication, interpersonal skills, and interprofessionalism to make the healthcare system better for patients and all healthcare professionals.
- VTCSOM values community service by requiring service learning participation, encouraging students to see themselves as having the responsibility to improve the community around them.
- Within the research value domain, graduates will be scientist-physicians, with enhanced research capabilities to facilitate the practice of evidence-based medicine.
- The students will learn about how medical information is discovered, verified, implemented and evaluated from fundamental biomedical discovery to patient care and practice.
- Competency in this domain is developed through study and by doing – that is, all students participate in real multiyear hypothesis driven original research under the supervision of appropriate scientific and/or clinical mentors.
- The students are then prepared to go beyond algorithmic-based medical practice and use their discovery-based analytical critical reasoning skills to solve difficult problems that challenge "conventional understanding," and serve as effective advocates for their patients.
- The interprofessionalism value domain is refining its mission, emphasizing patient safety and quality outcomes as the goals of enhanced communication and teamwork skills.
- The interprofessional curriculum is integrated throughout the four years and has evolved to better reflect curricular objectives for the level of student. It begins by focusing on intrapersonal qualities and skills, then transitions to interprofessional and interdisciplinary roles, values, understanding, and respect of healthcare team members.
- The value domain culminates with demonstrations of these skills through quality projects, observation of healthcare teams, and simulated experiences prior to entering the clerkship years.
- During the clinical rotations, interprofessional objectives and goals are met through team effectiveness and evaluation, as well as regularly scheduled seminars ("domain days") emphasizing improved quality, safety and patient outcomes through effective and highly functioning healthcare teams.

RELATIONSHIP TO THE PARENT UNIVERSITY

- The Virginia Tech Carilion School of Medicine and Research Institute (VTCSOM and VTCRI, respectively) were formed as part of a public-private partnership between Virginia Tech University (VT) and the Carilion Clinic.
- While the school is a freestanding institution, the research institute is an institute of Virginia Tech.
- Co-located with the school of medicine, the VTCRI integrates the school with the research and administrative infrastructure of the university partner.
- The executive director of the VTCRI is also the senior dean for research at the school, and is responsible for all curricular aspects of that value domain.
- All VTCSOM students are dual-enrolled in the graduate school at Virginia Tech where they earn a certificate in clinical and translational medical research.

EDUCATIONAL PROGRAM

CURRICULUM MANAGEMENT AND GOVERNANCE STRUCTURE

- The Medical Curriculum Committee (MCC) is a standing faculty committee of the medical school charged with reviewing, evaluating, recommending policy, and management of the medical student curriculum for all four years of the program.

- Implementation of curricular policy is the responsibility of the dean, as chief academic officer. The dean may delegate all or parts of the responsibility to the senior dean for academic affairs.

- The Block Integration Committees (BIC) are the two main committees charged with the development and implementation of the curriculum; they provide input to the MCC for their approval.

- In addition to value domain leaders, scientists, and evaluation and assessment professionals who participate on both committees, the Block Integration Committee-1 (BIC-1) is composed of basic and clinical science educators who are responsible for development of the curriculum related to the pre-clerkship years.

- BIC-2 includes the clerkship and electives directors, as well as assessment and evaluation specialists, and is responsible for the curriculum in Years 3 and 4.

SUPPORT FOR THE EDUCATIONAL PROGRAM

OFFICE OF EDUCATION

- The senior dean for academic affairs provides primary support to the dean for oversight and implementation of the curriculum.

- The office includes an associate dean for basic science education, two assistant deans for clinical sciences and skills, a senior director of evaluation, and a director of assessment.

FINANCIAL MANAGEMENT

The VTCSOM faculty reviews the curriculum annually and identifies the educational program requirements, including professional development resources for the educators.

The cost accounting system of the school is organized by department, and funds are budgeted separately for medical education.

The budget is further broken down by value domain, with senior deans and chairs delegated fiscal responsibility in their respective areas.

LEARNING OUTCOMES

- The educational goals and objectives for Virginia Tech Carilion School of Medicine are based upon competencies described by the Accreditation Council on Graduate Medical Education (ACGME), the American Board of Medical Specialties (ABMS) and the Institute of Medicine (IOM). The learning outcomes can be found at www.vtc.vt.edu.

STUDENT ASSESSMENTS

- The Goals and Objectives document provides a framework for development of assessment methodology targeted to definite outcomes.

- The MCC oversees the assessment tools that are developed to be used to test students' abilities in knowledge/skills and attitudes and monitors student performance on internal and external exams.

- The MCC regularly receives reports regarding assessment methodology and results from the block directors, clerkship directors, and the director of assessment via the MCC sub-committee on student assessment.

- Developed by the MCC, the **student assessment plan** ensures the matching of acceptable student performance standards with the Goals and Objectives document.

- The MCC has identified eight areas of student performance: basic and clinical science knowledge, clinical reasoning and problem solving, clinical skills, research principles and application, interprofessionalism, acquisition and integration of knowledge, peer-teaching and communication skills, and professionalism. (See Appendix K.)

As the program evolves, VTCSOM will:

1. Develop and use the results of exit graduation questionnaires such as the **AAMC Graduation Questionnaire** and follow up inquiries with residency directors who receive our graduates;

2. Apply **Quadrant Analysis** methodology to evaluate the degree to which students perceive their confidence and competence regarding each of our Goals and Objectives;

3. Obtain input from clinical faculty who regularly teach students in the clerkship years regarding the extent to which the first years of the curriculum prepared the students for the clinical rotations;

4. Survey the clinical faculty and students about whether specific objectives are being addressed in the Blocks, required clinical experiences, and electives; and

5. Collect and analyze information allowing assessment of interprofessional learning in formal curriculum experiences and in community-based experience. This includes data from targeted collaborating disciplines (e.g., nursing, physician assistant, respiratory therapy, and public health) and community-based stakeholders (e.g., community services personnel, families, and patients with whom our students will work).

CLINICAL EDUCATION

- Early in the first year, each student is assigned to an ambulatory clinic and preceptor in the Longitudinal Ambulatory Care Experience (LACE).

- Students attend this clinic for two half days every block in the first year, and for one half day in the second year. This experience continues throughout the first two years and provides both an immediate introduction for the student into the clinical practice of medicine, as well as a longitudinal opportunity for patient continuity, progressive assessment of clinical skills, and professional mentorship.

- The clerkships begin in July of a typical third-year schedule.

- Students complete six-week rotations in the clinical disciplines of Internal Medicine, Surgery, Family Medicine, Pediatrics, Psychiatry, and OB/GYN. Additionally, the third-year curriculum includes two-week rotations in Radiology and Neurology, a four-week rotation in Research, and a four-week elective.

- At the end of the first year, students are assessed on clinical and communication skills in a multi-station Objective Structured Clinical Examination (OSCE). This resulting information is used for formative feedback and is used to help structure the student's experience in subsequent clinical experiences, selectives, and electives.

- Students are brought together every other Friday afternoon to continue to integrate the four educational Value Domains (Basic Science, Clinical Science, Research, Interprofessionalism).

- The planning and implementation of the content of these "Domain Days" sessions involves the various Domain leaders and clerkship directors.
- Beginning in July at the start of the fourth year, students complete a series of four-week required clinical experiences including one Acting Internship (Internal Medicine, Surgery, or Pediatrics, or OB/GYN), and Emergency Medicine.
- The curriculum includes two-week rotations in one Medical Subspecialty, one Surgical Subspecialty, and ICU/Critical Care.
- Students have one four-week Elective that is site-specific, and 14 weeks of additional Elective time.
- Vacation is scheduled for students to interview for residency programs in the late fall of their fourth year.
- The fourth year ends with a two-week Dean's Colloquium in which students are provided information on current updates in basic sciences, the U.S. health system, debt management (mandatory) and repayment/financial aid issues, residency preparation suggestions, legal issues, and new educational developments at VTCSOM. Students also present their research projects during this colloquium.

HIGHLIGHTS OF THE EDUCATIONAL PROGRAM

- The Patient-Centered Curriculum at VTCSOM is integrated across all four years of medical school. It is designed to maximize learning by minimizing formal didactic sessions and emphasizing self-directed learning in a team setting.
- Online experiences, discussion sessions, and experiential learning are critical components.
- Knowledge and experience in four major domains of professional development are provided using a variety of sound educational strategies. These domains include Basic Sciences, Clinical Sciences, Research, and Interprofessionalism. Strategies include:
  - Enhanced technology for teaching, learning and assessment such as digital textbooks, laptop computers, and advanced task-trainers/manikins
  - Use of standardized NBME exams
  - Early clinical exposure to frame the basic sciences in the proper context for medical education
  - Cadaveric dissection
  - Incorporation of basic sciences in the clerkship years, further reinforcing its fundamental importance to clinical medicine
  - Use of "methods in logic" analysis of publications to study research strategies ranging from basic to translational to clinical to population based
  - Interactions with visiting medical scholars who present contemporary approaches and research aligned with topics in basic science and clinical skills domains
  - Interprofessional team building
- The Patient-Centered Curriculum provides students with the foundational knowledge and clinical experience to enter into any residency program.
- Graduates are provided in-depth experiences in research and interprofessional healthcare education and practice. This prepares entering residents with accentuated leadership skills grounded in research principles and teamwork knowledge and appreciation.

FACULTY

FACULTY RECRUITMENT

- Faculty recruitment is the area of greatest strength of the VTCSOM.
- The vast majority of faculty members are drawn from the ranks of Virginia Tech (basic scientists), Carilion Clinic, and the Jefferson College of Health Sciences (Department of Interprofessionalism).
- Faculty members are recruited from the local VA Medical Center and the surrounding community.
- Over 400 well-qualified faculty have been appointed to the medical school, including 46 basic scientists in the Department of Basic Sciences and an additional 37 scientists whose appointments are in the clinical departments. This number is considered appropriate for the delivery of the pre-clerkship years, especially given the case-based educational format at the VTCSOM.
- The clinical faculty represent all the major specialties.
- Recruiting racially diverse faculty members is an ongoing challenge, given the rural setting of the VTCSOM in southwest Virginia.

VALUING TEACHING

- Scholarship is expected of faculty members at VTCSOM, and is a major criterion by which faculty members are judged in consideration for promotion.
- VTCSOM focuses on its teaching mission, and recognizes and rewards scholarship in teaching.
- Teaching innovation in the pedagogy of medical education presents opportunities for scholarly activity.
- Evidence of scholarship includes:
  - Publication of papers, textbooks, chapters, technical journals, videos/audios
  - Presentation at meetings or conferences (oral, printed)
  - Achievement of grants or funding
  - Development of curriculum
  - New modes of education such as electronic teaching aides
  - New programs in skills achievement
  - New methods of assessment or evaluation
  - Collaboration in task forces or committees charged with educational innovation
  - Other forms of scholarship in teaching

FACULTY DEVELOPMENT INITIATIVES

- Faculty development is an integral part of education and is emphasized as a lifelong learning process.
- All faculty members are required to attend a **faculty orientation session** given by the Associate Dean for Faculty Affairs.
- Annually, faculty meet with their chairs as part of the evaluation process, and training requirements are detailed for the next academic year.
- Specialized forms of teaching enhancement for the problem-based learning curriculum are offered through Academic Affairs.

- Under the supervision of the Associate Dean, the faculty are trained to be facilitators in the problem-based learning technique in small groups. This training is mandatory for all facilitators.
- VTCSOM offers face-to-face training in assessment and evaluation skills, including exam question-writing, in two forums.
- VTCSOM provides in-house sessions on an as-needed basis during the curriculum development and review.
- A more formalized training process is conducted by the **Office of Professional Staff Affairs (OPSA),** which offers a broad range of sessions dealing with many aspects of teaching and evaluation.
- All sessions are offered at no cost to VTCSOM faculty. Examples include:
  – Teaching on the wards or in clinics
  – How to give a lecture
  – Assessment and evaluation
  – Curriculum development
- Co-sponsored by VTCSOM and Carilion Clinic, OPSA is supervised by the Senior Dean for Academic Affairs. With the onset of clinical clerkships in the 2012-2013 academic year, OPSA and senior leadership in the Office of the Dean offered an intensive preceptor training course.
- Faculty Development Fellowship (FDF) and Departmental Training. The FDF is a specialized, intense form of faculty development consisting of educational sessions and project expectations culminating in a new curricular proposal by the faculty fellow.
- When successfully completed, the faculty member is granted a certificate and encouraged to take his/her new skills to department and VTC venues.
- Individual basic science and clinical departments also have faculty development sessions as part of departmental or divisional retreats. Such sessions are typically led by participants in the Faculty Development Fellowship (FDF) program for their colleagues.
- In partnership with Carilion Clinic, VTCSOM clinical faculty and other interested parties are encouraged to participate in Continuing Medical Education (CME) workshops.
- The program is accredited by the Medical Society of Virginia (MSV) to provide AMA PRA Category 1 Credit™ and offers a broad range of CME opportunities to reach primary care physicians, specialists and subspecialists. All sessions are offered at no cost to VTCSOM faculty.

LESSONS LEARNED AND SOURCES OF PRIDE

WHAT HAS WORKED WELL

- The goals and objectives for all four years of the curriculum are in place.
- Faculty have been appointed, and are participating in numerous ongoing professional development programs in preparation for their respective roles in the educational program, and are actively engaged in the governance of the school.
- The admissions process, using the Multiple Mini-Interview (MMI) has proven successful. Community members play a substantial role as interviewers and, in doing so, have become ambassadors for VTC.
- Three classes have been accepted, and recruiting is under way for the fourth.
- The inaugural class has progressed to the clerkship years, and no student has withdrawn for academic difficulties.

- The financial position of the school has strengthened, and VTC has taken occupancy of the new purpose-built building.
- The depth of experience of the leadership team, coupled with the enthusiasm and energy of the partners, faculty, staff, community and students, result in the successes enjoyed by VTCSOM.
- Students have identified and implemented a broad range of research projects that involve mentors including VT basic scientists, VTCRI translational researchers and Carilion clinicians.

WHAT HAS WORKED LESS WELL

Three areas present major challenge: regional accreditation, financial aid, and student diversity.

- Regional Accreditation. Significant institutional resources are required for the multiple accreditation processes.
  – As a new and developing school that is free-standing and not formally within the governance structure of a university system, VTCSOM must achieve regional accreditation as an independent institution, despite its public-private partnership status. This results in increased cost, additional databases, and multiple intensive site visits.
- Financial Aid. Absence of a streamlined process to achieve regional accreditation through an existing institution (as part of a substantive change) has resulted in the lack of access to federal financial aid programs until regional accreditation is achieved.
  – As a result, the VTCSOM has developed private loan options at competitive and comparable rates to avoid negatively impacting its students until eligibility to participate in federal programs is established.
- Student Diversity. Recruiting a racially diverse class remains an ongoing challenge, given the overall national numbers of applicants to medical schools.
  – VTCSOM is actively developing outreach, pipeline and post-baccalaureate programs to improve its diversity characteristics over time.
  – The school is also committed to expanding efforts to improve philanthropic contributions to support scholarships for minority candidates.

MOST PROUD OF TO DATE

"The partnership forged between Virginia Tech and the Carilion Clinic has supported the development of an innovative educational program that includes the value domains of interprofessionalism and research along with the basic sciences and clinical sciences. The enthusiasm and dedication to the success of the school and its students that are demonstrated by the school's Board of Directors, leadership of these organizations, and faculty and staff are exemplary."

--LCME Provisional Accreditation Ad Hoc Survey Team Report

Appendix A
Frank H. Netter, M.D., School of Medicine at Quinnipiac University

Learning Outcomes

GENERAL COMPETENCY 1. CARE OF INDIVIDUAL PATIENTS

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
1.1 Demonstrate respect and compassion for all patients. 1.2 Practice sensitive and culturally effective patient-centered care, by identifying patient-specific context and preferences. 1.3 Gather accurate, organized, and efficient medical histories from patients and families, attend to patient symptoms, beliefs, concerns, expectations, and illness experiences. 1.4 Perform accurate and relevant focused and comprehensive physical examinations, distinguishing normal from abnormal findings. 1.5 Access and interpret written and electronic medical records to obtain a thorough patient data set.	- Medical student home evaluation form - Required clinical rotation evaluation form - Standardized patient surveys - Actual patient surveys
1.6 Use decision analysis and evidence-based reasoning to interpret clinical data. 1.7 Identify individualized risk factors operative in any patient.	- Medical student home evaluation form - Required clinical rotation evaluation form - Multiple-choice examinations -Small-group session evaluation form
1.8 Assess patient information accurately in formulating a prioritized differential diagnosis. 1.9 Apply best practice, ethical, and cost-effective principles in ordering tests and procedures. 1.10 Compose comprehensive and focused medical chart notes (written and electronic), accurately documenting medical history, physical exam, and diagnostic test data. 1.11 Draft prioritized, comprehensive, and focused problem lists, assessing each problem in cogent, organized, and comprehensive prose. 1.12 Understand therapeutic interventions for common medical conditions, applying evidence-based reasoning for ordering medications and other therapies.	- Medical student home evaluation form - Required clinical rotation evaluation form - Standardized patient surveys - Actual patient surveys - Written assignments in Clinical Skills Assessment - Multiple-choice questions

GENERAL COMPETENCY 1. CARE OF INDIVIDUAL PATIENTS

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
1.13 Develop accurate medical orders, incorporating patient input, and respecting patient autonomy. 1.14 Demonstrate proficiency with common medical procedures (listed in clinical arts and sciences course description).	- Clerkship written assignments - Patient chart notes - Required clinical rotation evaluation form - Medical student home evaluation form - Standardized patient evaluations - Actual patient evaluations - Patient and procedure logs
1.15 Identify when additional input is needed, and effectively communicate with consultants.	- Medical student home evaluation form - Required clinical evaluation form

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COMPETENCY 2. PROFESSIONALISM

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
2.1 Demonstrate honesty, integrity, and respect in all interactions with patients, colleagues, and faculty. 2.2 Display empathy, altruism, and compassion toward patients and colleagues alike. 2.4 Recognize ethical dilemmas encountered in educational and clinical settings, and take appropriate steps (for example, by reporting to authorities, or seeking counsel). 2.6 Demonstrate equal and just treatment of all patients and colleagues. This includes, but is not limited to, diversity in gender, race, culture, language, age, sexual orientation, religious beliefs, or disability. 2.7 Maintain professional deportment and demeanor. 2.8 Dress and maintain personal hygiene in a professional manner appropriate to the educational or patient care setting. 2.9 Prepare for educational experiences in a thorough, intellectually engaged, and timely fashion as mature graduate students of medicine. 2.13 Accept responsibility for mistakes or omissions, and disclose errors to appropriate supervisors. 2.20 Engage in peer education, accepting and delivering constructive feedback. 2.21 Recognize others in breach of professional standards and respond appropriately, following school of medicine Code of Conduct policies and procedures.	- Small-group session evaluation forms - Medical student home evaluation form - Clerkship evaluations form - Critical incident report - Peer evaluations - Self-assessments
2.3 Apply the highest ethical standards of the profession, as set forth in the AAMC Code of Ethics. 2.17 Understand and apply the legal and ethical principles inherent to informed consent, end-of-life decisions, and HIPAA. 2.18 Identify and avoid when possible, and manage potential conflicts of interest with industry and other organizations that potentially compromise ethical behavior and patient care.	- Multiple-choice exam questions - Small-group session evaluations - Peer-evaluation - Self-assessments

COMPETENCY 2. PROFESSIONALISM

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
2.5 Maintain confidentiality, respect individual autonomy, and treat all persons with dignity. 2.11 Maintain appropriate professional boundaries with patients, peers and faculty. 2.15 Recognize and refrain from conduct where patients are exploited (e.g., sexually, financially, or for other personal gain). 2.16 Represent the ideals of altruism, justice, and patient advocacy. 2.19 Strive to place patient interests before self-interest at all times.	- Medical student home evaluation form - Required clinical evaluation form - Small-group session evaluation form - Standardized patient evaluations - Actual patient evaluations
2.10 Display sophisticated self-awareness skills and willingly engage in self-improvement. 2.12 Recognize personal limitations of knowledge, skills, and behaviors; seek appropriate educational support to address the self-identified deficiencies. 2.14 Maintain and monitor physical, psychological, and emotional health; seek appropriate health and counseling services when ill or impaired; and do not engage in patient care if personal health might endanger others.	- Self-assessments - Evaluation of narrative medicine - Self-assessments - Evaluation of narrative medicine

COMPETENCY 3. KNOWLEDGE AND SCHOLARSHIP

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
3.1 Describe the essential concepts within the foundations of human biology – molecular, biochemical, genetic, immunologic, and cellular mechanisms. 3.2 Explain the comprehensive physiology underlying normal human function. 3.3 Identify the normal histology and anatomy of the human body. 3.4 Discuss the fundamentals of human behavior and development, from fertilization and embryology through aging. 3.5 Explain the homeostatic mechanisms of multi-organ systems.	- Formative and summative multiple-choice examinations

COMPETENCY 3. KNOWLEDGE AND SCHOLARSHIP

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
3.7 Recognize the critical contributions of the biopsychosocial determinants of "health" – global, national, community, family, and lifestyle choices. 3.8 Explain the essential principles of clinical epidemiology, population, and public health. 3.9 Apply the biostatistical and critical analytical skills needed to interpret basic science and clinical literature. 3.10 Discuss the health law and medical ethical principles inherent to the practice of medicine. 3.15 Describe the core principles of gross and microscopic, analytical/diagnostic, and forensic pathology. 3.16 Explain the etiological mechanisms of human diseases – microbial, environmental, inherited, acquired/lifestyle related, and idiopathic. 3.17 Discuss the pathophysiology, clinical manifestations, and prognosis of medical illness. 3.18 Discuss fundamental principles of diagnostic imaging and laboratory testing. 3.19 Explain principles of therapeutics – molecular, pharmacological, surgical, radiological, and behavioral. 3.23 Develop a clinical question and effectively search medical literature utilizing electronic databases. 3.24 Recognize the principles of information technology, to prepare for future innovations in data management.	- Formative and summative multiple-choice examinations

COMPETENCY 3. KNOWLEDGE AND SCHOLARSHIP

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
3.11 Recognize the influences of health care systems – political, economic, and future perspectives – on health and disease management. 3.12 Recognize the nonmedical components of medical practice – financial, personnel management, team leadership, regulatory systems, and insurance models. 3.13 Describe the components of a focused and comprehensive medical history and physical examination. 3.14 Use best-practice models of care modeled on evidence-based medicine, cost/benefit analysis, and diagnostic reasoning. 3.20 List the most commonly used types of complementary and alternative therapeutic approaches, and explain the rationale for their use. 3.21 Identify and appreciate the roles, responsibilities, training, and skills of other health professionals. 3.22 Effectively and efficiently gather and interpret medical evidence, in order to apply new knowledge at the point of care.	- Medical student home evaluation form - Required clinical evaluation form - Small-group session evaluation form - Standardized patient evaluations - Actual patient evaluations - Multiple-choice examinations - Assessment of written assignments in clinical skills assessment
3.25 Develop in-depth scientific knowledge in a selected concentration area.	- Formative and summative capstone project reports - Evaluation of the poster, or oral presentation of capstone project

COMPETENCY 4. INTERPROFESSIONAL AND COMMUNICATION SKILLS

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
4.1 Exhibit relational empathy in clinical settings, conveying an understanding of a patient's physical, emotional, and psychological state through verbal and nonverbal behaviors. 4.2 Demonstrate cultural sensitivity by engaging in respectful and positive interactions with all patients. 4.3 Actively listen and observe during patient encounters, attending to verbal and nonverbal cues. 4.4 Apply comprehensive interviewing skills with patients and families, including effective use of interpreters. 4.5 Provide effective anticipatory guidance during physical examinations, giving appropriate verbal prompts. 4.6 Accurately communicate patient data to other health professionals through oral presentations and written and electronic medical records. 4.7 Deliver medical information to patients, including, but not limited to, diagnosis, prognosis, diagnostic and therapeutic plans, delivering unwelcome news, and communicating ambiguity and uncertainty. Information will be adapted to individual patient needs at a level appropriate to health literacy, language, hearing, and cultural expectations. 4.8 Effectively use lifestyle counseling, respecting patient autonomy and lifestyle choices. 4.9 Engage in shared decision making with patients and health care colleagues, as evidenced by listening, understanding, and negotiating with flexibility and empathy.	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Standardized patient evaluations actual patient evaluations
4.10 Effectively teach colleagues in clinical and educational settings.	- Small-group evaluation forms - Peer evaluation forms - Self-assessments
4.11 Respectfully function as a partner and consultant to other health professionals.	- Medical student home evaluation form - Required clinical rotation evaluation form

COMPETENCY 5. PRACTICED BASED LEARNING & IMPROVEMENT

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
5.1 Assess the care of patients, identify areas for improvement of expertise, and implement plans to address self-perceived deficits. 5.2 Appraise and assimilate best evidence scientific information into patient care. 5.4 Contribute to enhancing quality care and patient safety using best evidence. 5.5 Use information technology effectively to maximize education by acquiring, storing, retrieving, and analyzing new medical data. 5.6 Practice population-based care by learning and employing practice guidelines, best-practice, and clinical pathways in the care of individual patients.	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Standardized patient evaluations - Multiple-choice examinations - Self-assessments
5.3 Set and meet personal learning goals.	- Self-assessments

COMPETENCY 6. SYSTEMS-BASED PRACTICE

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
6.1 Identify the key principles of health care financing and delivery. 6.2 Explain existent and planned organizational models for health care. 6.3 Identify factors that contribute to health care disparities. 6.5 Recognize the impact of time management, case management, referral management, and patient satisfaction surveys on health care delivery.	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Multiple-choice examinations

COMPETENCY 6. SYSTEMS-BASED PRACTICE

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
6.4 Work collaboratively to coordinate patient care in the health care system. 6.6 Work effectively in a variety of health care delivery settings and systems (including outpatient, inpatient, nursing home, and free clinic). 6.7 Incorporate cost awareness and risk-benefit analysis in patient care. 6.8 Advocate for quality, equal access, and optimal patient care systems. 6.9 Help identify system errors and implement potential systems solutions.	- Medical student home evaluation form - Required clinical rotation evaluation form - Standardized patient evaluations - Multiple-choice examinations

COMPETENCY 7. INTERPROFESSIONAL COLLABORATION

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
7.1 Identify the fundamentals of other health science educational programs – training, capabilities, and unique contributions each profession brings to patient care. 7.2 Recognize national and international models of team care, such as Accountable Care Organizations (ACOs) and the Patient-Centered Medical Home. 7.4 List the principles of effective medical consultation and supervision. 7.8 Apply principles of team dynamics and strategies to prevent and resolve conflict.	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Standardized patient evaluations - Multiple-choice examinations

COMPETENCY 7. INTERPROFESSIONAL COLLABORATION

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
7.3 Work respectfully and positively with health professionals from all disciplines in learning teams and patient care teams. 7.5 Represent the physician's role in health care teams, reflecting on personal strengths and shortcomings, and how these influence team function. 7.6 Add to their knowledge of basic medical science topics by engaging in interprofessional seminar groups. Examples include medical ethics (in a mock Ethics Committee), and fundamentals of radiology (with radiology imaging students). 7.9 Teach and learn from health professional student colleagues. 7.10 Accept evaluation from other health professional student colleagues. 7.11 Work collaboratively in interprofessional teams to enhance patient safety and quality of care.	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Standardized patient evaluations - Peer evaluation - Self-assessments
7.7 Effectively engage in real and simulated patient experiences with health professionals from other disciplines. Examples include home visits, comprehensive evaluation for patients with disabilities, physical examination, and mock cardiac arrests with high fidelity mannequins.	- Medical student home evaluation form - Required clinical rotation evaluation form - Standardized patient evaluations - Peer evaluation - Self-assessments

COMPETENCY 8. CITIZENSHIP & SERVICE

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
8.1 Prepare and deliver educational sessions for peers in order to enhance the academic culture for all.	- Small-group session evaluation forms - Peer evaluation forms
8.2 Actively participate in the school of medicine and university community. 8.4 Become functional members of our practice community by meeting (and ideally exceeding) the formal graduation requirement of 40 hours of community service, including a service learning component.	- Self-assessments - Monitoring by the associate dean for student affairs

COMPETENCY 8. CITIZENSHIP & SERVICE

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
8.3 Identify the resources and barriers to the health of the local and regional practice community, identifying vulnerable and marginalized populations within those communities served.	-Multiple-choice examinations -Small-group evaluation forms

COMPETENCY 9. MEDICAL PRACTICE MANAGEMENT

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
9.1 List the business principles underlying successful health care delivery models. 9.2 Practice team building, personnel management, and motivational strategies to promote a functional and successful office practice. 9.4 Discuss reform efforts impacting health care delivery.	- Medical student home evaluation forms
9.3 Advocate for other members of the health care team.	- Medical student home evaluation forms - Required clinical rotation evaluation form - Peer evaluation - Self-assessments

COMPETENCY 10. CONCENTRATED & INDEPENDENT LEARNING

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
10.1 Demonstrate commitment to their education by actively engaging in the Concentration/Capstone project. 10.2 Produce a self-directed capstone project in a selected concentration area. 10.3 Effectively present their completed capstone project to the university community, and ideally, to the national or international scientific community.	- Formative and summative capstone project progress reports - Evaluation of the poster, or oral presentation of the capstone project

COMPETENCY 11. INTEGRATION - ENTRUSTABLE PROFESSIONAL ACTIVITIES

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
11.1 Work with mentors to set priorities and manage time independently to balance learning, patient care, university and outside activities, and personal life. (Expected throughout Years 1 through 4.) 11.2 Recognize and incorporate effective strategies to maintain competence in future training. 11.11 Strive to embody the ideal attitudes of a physician leader by carrying out responsibilities with positivity, equanimity, and humility; embracing change and unpredictability as integral components of the study of medicine; and using compassion, enthusiasm, and hopefulness to inspire others. (Expected throughout Years 1 through 4.)	These expectations bridge all courses and are, therefore, assessed by the senior associate dean of academic affairs, as well as by the promotions and performance standards committee by reviewing the sum of the narrative evaluations for all clinical and small-group learning activities provided by faculty.

COMPETENCY 11. INTEGRATION - ENTRUSTABLE PROFESSIONAL ACTIVITIES

Educational Program Objectives Students will be able to:	Outcome Measure(s)*
11.3 Gain independence in gathering accurate data from patients, progressing to unsupervised collection of a medical history and physical examination in a timely fashion. (Expected by the end of Years 1 and 2.) 11.4 Reliably and accurately convey patient data to others that is trusted and does not need to be re-confirmed. (Expected by the end of Years 2 and 3.) 11.5 Become proficient at independently formulating comprehensive assessments, diagnostic, and therapeutic plans for common acute and chronic conditions in ambulatory and hospitalized patients. (Expected by the end of Year 3.) 11.6 Develop meaningful encounters with patients that meet patient needs, by demonstrating situational empathy and emotional intelligence, flexibility in thought and data gathering, improvisation in creating patient-specific recommendations, and communication skills in providing true shared decision-making. (Expected by the end of Year 3.) 11.7 Effectively modify patient behaviors by using nationally recognized practice guidelines, establishing functional relationships with patients and their families to effect and sustain behavioral change, collaborating with patients and their families to develop written action plans, and referring patients to other health care professionals as needed for lifestyle-related conditions. (Expected by the end of Year 3.) 11.8 Independently identify and research questions pertaining to assigned patients, and present an accurate report to colleagues, which contributes significantly to improved patient care. (Expected by the end of Year 3.) 11.9 Demonstrate proficiency in assuming a preeminent and/or leadership role in managing complex patient problems within medical teams of physicians and other health professional colleagues. (Expected by the end of Year 4.) 11.10 Develop a complex understanding of the physician's role in society. (Expected by the end of Year 4.)	- Medical student home evaluation form - Required clinical rotation evaluation form - Small-group session evaluation form - Standardized patient evaluations - Actual patient evaluations - Multiple-choice examinations - Peer evaluation - Self-assessment These reports are reviewed by the Promotions and Performance Standards Committee.

Appendix B
Charles E. Schmidt College of Medicine

General Competencies and Educational Program Objectives

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVE
1. Medical Knowledge and Research Skills (MK): Demonstrate knowledge of the scientific basis of medicine, the ability to apply knowledge to patient care, and contribute to scholarship in medicine through research or teaching. ***ACGME: Medical Knowledge***	• Demonstrate knowledge of the normal structure and function of the human body (cells, tissues, and organs). • Demonstrate an understanding of the molecular, biochemical, and cellular processes that maintain homeostasis. • Describe the changes that occur to organs and organ systems in development and aging. • Describe the structural changes and physiologic alterations that underlie disease states. • Describe causes of diseases (vascular, inflammatory, infectious, neoplastic, degenerative, genetic, developmental, environmental/toxic, allergic, autoimmune, traumatic, psychosocial, and behavioral), and the ways in which these processes present in clinical practice. • Describe the mechanisms of actions of side effects and interactions of major therapeutic agents. • Describe nonpharmacologic approaches to disease and symptom management. • Demonstrate knowledge of the principles and concepts underlying normal behavior and mental illness. • Demonstrate applications of current medical knowledge in patient care. • Contribute to research and teaching in case-based small groups and patient care settings.

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVE
2. Patient-Centered Care (PC): Demonstrate skills in acquiring and synthesizing information relevant to the individual patient, and the ability to deliver care that is customized and responsive to the patient's needs. ***ACGME: Patient Care***	• Establish a safe and comfortable environment for the physical examination, respecting the patient's privacy and dignity, and counseling the patient about what to expect during the exam. • Conduct an exam that is appropriate to the patient's age and the clinical venue. • Conduct a comprehensive physical exam that is organized, efficient, and technically correct, focusing on organ systems related to the chief complaint. • Understand the rationale for and effectively perform selected medical procedures with attention to the patient's comfort. • Manage and prioritize patient care tasks for a group of patients. • Anticipate the patient's needs, participate in discharge planning, and create individualized disease management and/or prevention plans including patient self-management and behavior change.
3. Ethics and Law (E&L): Demonstrate appropriate ethical and legal choices in the treatment of patients and their families in relation to the health care system, adhering to institutional and professional standards and regulations. ***ACGME: Professionalism***	• Recognize different value systems while holding strongly to personal ethics. • Identify, analyze, and justify appropriate ethical and legal choices in the treatment of individual patients and their families. • Address ethical concerns in the practice of medicine, particularly the care of patients at the end of life, and in issues concerning the organization and financing of medical care. • Demonstrate sensitivity and responsiveness to patient individuality, including the role of culture, ethnicity, gender, age, and other aspects in health practices and decisions.

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GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVE
4. Professionalism (P): Demonstrate knowledge and behavior that represents the highest standard of medical practice, including compassion, humanism, respect, accountability, dependability, and integrity when interacting with peers, interprofessional health care team members, patients, and families. ***ACGME: Professionalism***	• Behave with honesty, integrity, respect, and compassion toward patients, families, students, faculty, and members of the health care team. • Respect the privacy and maintain the confidentiality of patients and families. • Apply and practice scientific standards for quality patient care. • Demonstrate punctuality, reliability, responsibility, willingness to do more when needed, and completion of tasks.
5. Interpersonal and Communication Skills (ICS): Communicate effectively with patients, families, health care team members, and other colleagues; establish the rapport necessary to form and maintain therapeutic relationships with patients. ***ACGME: Interpersonal and Communication Skills***	• Communicate effectively with patients and families, including situations involving sensitive, technically complex, or distressing information. • Demonstrate adaptation of communication style to the individual needs of patients and urgencies of situations. • Provide a concise, accurate, verbal summary of a patient situation to a faculty member, resident, or peer, prioritizing the most significant factors for clinical decision-making. • Create and maintain appropriate records of clinical encounters using standard terminology and formats. • Prepare appropriate written and other communications between health professionals and organizations.
6. Cultural Competency (CC): Demonstrate an understanding of the manner in which people of diverse cultures and belief systems perceive health and illness and respond to various symptoms, diseases, and treatments; recognize and appropriately address gender and cultural biases in health care delivery, while considering first the health of the patient. ***ACGME: Professionalism***	• Demonstrate knowledge about the impact of cultural beliefs and practices on health, disease, and treatment. • Demonstrate knowledge about the impact of socioeconomic factors on health, disease, and treatment. • Demonstrate knowledge about the impact of gender, sexuality, religion and spirituality, ethnicity and race on health, disease, and treatment. • Provide treatment that incorporates and respects the patient's personal values, preferences, and expressed needs. • Conduct a culturally competent clinical encounter, including the use of interpreters.

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVE
7. Health Promotion and Disease Prevention for Patients and Populations (P&P): Recognize the importance of health promotion and disease prevention as crucial elements to improve the health of individuals and populations. ***ACGME: Patient Care***	• Demonstrate an understanding of the population-specific factors that affect disease prevention, incidence, diagnosis, treatment, and outcomes, and uses this information to tailor appropriate care to specific patient populations. • Demonstrate an understanding of the features of health systems that promote the integration and utilization of disease prevention-health promotion services into clinical practice. • Educate and counsel patients about plans of care, health promotion, and disease prevention. • Identify recommended clinical preventive services based on the patient's age, sex, and risk factor status using appropriate guidelines.
8. Lifelong Learning and Self-Improvement (LL): Recognize the limits of personal knowledge and experience; actively pursue clear learning goals; exploit new opportunities for intellectual and professional growth; demonstrate critical, reliable, and valid self-assessment, and apply the knowledge gained to the practice of medicine. ***ACGME: Practice-Based Learning and Improvement***	• Demonstrate competence in the art of receiving and providing meaningful assessments and feedback. • Recognize and address personal limitations, educational needs, attributes, or behaviors that might affect their effectiveness as a physician. • Select and utilize appropriate learning resources to create a well-articulated plan for improvement. • Develop reflective practice habits, using analysis of experiences to improve performance.
9. Systems of Health Care Practices (SHC): Understand the various health care delivery systems and the importance of cooperation and coordination with other health professionals to enhance the continuity, safety, and reliability of patient care. ***ACGME: Systems-Based Practice***	• Demonstrate an understanding of the basic principles of health care organization and finance. • Demonstrate an understanding of the structure and function of a variety of health care delivery systems. • Demonstrate an understanding of the roles of other members of the health care team and work effectively with them to provide coordinated care. • Complete tasks in a timely fashion (papers, reports, examinations, appointments, patient notes, and patient care tasks). • Participate effectively in patient care in a variety of settings, each with different priorities, opportunities, and constraints.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVE
10. Self-Awareness and Personal Development (PD): Approach the practice of medicine with awareness of personal limits, strengths, weaknesses, and vulnerabilities; tend to personal physical and mental health; seek help and advice when needed; and develop personally appropriate coping strategies.	• Take steps to maintain personal physical and mental health using coping strategies, and seeking appropriate assistance as needed. • Recognize personal reactions to difficult situations and understand how these personal responses may affect life and work. • Demonstrate an awareness of personal beliefs, values, and emotions that influence behaviors with others. • Create a plan for identifying areas of medicine that fit with personal goals and abilities, incorporating appropriate advice, and career counseling. • Cope appropriately with medical mistakes and learn from them when they occur.
11. Community Engagement, Service and Advocacy (CE): Recognize the diverse factors that influence the health of individuals and communities; identify the community factors impacting health care delivery; understand the physician's obligation to contribute to the larger community; and understand the importance of educating the entire community about health issues.	• Become involved and responsible in the community through service-learning activities. • Seek opportunities to donate time and expertise to projects that enhance the well-being of others. • Demonstrate knowledge about behavioral, socioeconomic, and cultural dynamics that can affect individual, community, and public health. • Assess challenges to providing high-quality health care for members of vulnerable groups, and articulate the role of physicians in working to eliminate barriers. • Advocate for individual patients and communities with limited access to quality health care. • Promote the health and welfare of a community group by eliciting needs and assets, and collaborating with community partners to deliver sustainable, quality service.

Appendix C
Florida International University, Herbert Wertheim College of Medicine

FIU Herbert Wertheim College of Medicine
FLORIDA INTERNATIONAL UNIVERSITY
MD Curriculum Educational Program Objectives

Strands: 1. Human Biology; 2. Disease, Illness, and Injury; 3. Clinical Medicine; 4. Professional Development; 5. Medicine and Society

Educational Program Objectives	Strands*	Medical Knowledge	Patient Care	Interpersonal Communication Skills	Professional Development	Systems-Based Practice	Practice-Based Learning and Improvement	Social Responsibility	Outcome Measures
Identify the major mechanisms of biochemistry, genetics, cellular biology, and physiology regulating normal function of organ systems.	1	X							ESA, MCQ, NBME
Describe the endogenous response to external and internal insults, including genetic and metabolic alterations, developmental disorders, environmental toxins, autoimmune diseases, and infections.	1/2	X							ESA, MCQ, NBME
Explain how the body integrates and adjusts the function of cells and organ systems to maintain homeostasis, and how dysregulation of these mechanisms leads to disease.	1/2	X							ESA, MCQ, NBME
Apply the principles of embryology, anatomy, cellular biology, biochemistry, genetics, physiology, immunology, and pharmacology to determine etiology, pathophysiology, prevention, and treatment of critical human disorders.	1/2	X	X						ESA, MCQ, NBME
Communicate effectively with patients, families, and health service providers, including situations involving language barriers and effective use of professional interpreters.	3, 5		X	X	X	X			OSCE, PE
Conduct and document complete medical history and physical examination using the requisite fundamental skills, including recognition and evaluation of confounding factors of age, gender, ethnicity, cultural background, socioeconomic status, family history, and emotional state.	3, 2, 5	X	X	X	X			X	OSCE
Identify and propose initial therapy for acute life-threatening situations.	3, 2	X	X						ACLS/BLS, OSCE
Identify and propose a management plan for chronic disease.	3, 2, 5	X	X			X			MCQ, NBME, PE
Develop differential diagnoses based on knowledge of common clinical, physical, and biochemical manifestations and imaging findings of common diseases, illnesses, and injuries.	3, 2	X	X						CE, OSCE, PE (Oral Exam)
Correctly perform basic procedural skills with attention to patient comfort.	3	X	X						PE
Obtain and manage patient information from the medical record.	3	X	X		X				OSCE
Use evidence-based medicine to provide quality health care to individuals and populations.	4, 5	X	X		X		X	X	CE, ESA, MCQ, PE,
Apply quality scientific research methods.	4, 5	X			X				CE, SGR
Discuss the core financial, legal, structural, policy, and regulatory aspects of the US health care system and their impact on the delivery of health care.	4, 5				X	X		X	CE
Identify the personal skills and systems-level processes that support continuous quality improvement and patient safety, and use standard precautions in the health care setting.	4			X	X	X			CE, OSCE, PE
Apply knowledge of complementary and integrative medicine to patient care.	4, 5	X	X		X				CE
Identify end-of-life care issues from the physician's and patient's perspectives.	4, 3		X		X				CE
Apply professional behavior attitudes, humanism, self-awareness, emotions, values, and identity for the care of patients, self, and others.	4, 3, 5		X		X				CE
Integrate epidemiologic, socioeconomic, behavioral, cultural, and community factors into patient care.	5, 3		X		X		X	X	ESA, OSCE, PE
Advocate toward improved health outcomes at the community level through analysis of sociocultural determinants of health, engagement, and reflection.	5	X	X	X	X	X	X	X	CAPSTONE
Provide appropriate patient-centered counseling techniques to improve rational utilization of health care resources, prevention, and patient satisfaction.	5, 3	X	X	X	X				OSCE, PE
Interact effectively with other professionals to address health care needs of patients.	5, 3, 4	X	X	X	X				CE, PE
Anticipate ethical issues encountered in clinical care and research, explain ethically justifiable options and consequences from multiple perspectives, and manage ethical challenges.	5, 3			X	X				OSCE, SGR, CE

*Primary strand is listed first. ACLS/BLS = Advanced Cardiac Life Support/Basic Life Support; Capstone = project leading to scientific and/or lay presentation; CE = Course Exam; ESA = Essay/Short-Answer Exams; MCQ = Multiple-Choice Question Exams; NBME = National Board of Medical Examiners Subject Exams (including United States Medical Licensing Exam Part 1); OSCE = Objective Structured Clinical Examination; PE = Preceptor Evaluation; SGR = Student-Generated Reports.

Last revised on 8/2/2012.

Appendix D
Florida State University College of Medicine

Learning Outcomes

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
PATIENT CARE: Students must be able to appropriately engage and evaluate patients, develop and communicat differential diagnoses and initial management plans for patients who present with common diseases/conditions, or requests for health maintenance services. This domain involves building professional relationships with patients and other health care professionals, gathering appropriate clinical information, analyzing and processing this information, identifying likely diagnoses, and creating an initial plan for appropriate diagnostic and therapeutic interventions.	A. Demonstrate the ability to assess the "patient's unique context" (including family, community, cultural, spiritual, historical, and legal factors), and incorporate that information into his/her care. B. Organize and conduct a medical encounter including the use of an appropriate greeting/opening, gathering information, and providing closure. C. Demonstrate the ability to elicit an accurate and thorough medical history appropriate for the patient's reason for visit. D. Conduct accurate and thorough physical and mental status examinations appropriate for the patient's reason for visit. E. Recognize physical exam findings that are common variations of "normal," and those physical exam abnormalities that are frequently found in patients with common diseases/conditions. F. Understand the purpose and limitations of screening and diagnostic tests, and utilize this understanding appropriately in clinical situations. G. Demonstrate the ability to assess a patient's functional capacity.	Observations of student clinical performance using Standardized patients in the Doctoring courses Observational assessment of student interactions with patients during preceptor experiences in the Doctoring courses Observations of student clinical performance during summative assessments points (Objective Structured Clinical Examination: the Graduation OSCE) Observational assessment of student interactions with patients and their families in the Pediatrics Clerkship (patient perception questionnaires) Student written patient summaries after clinical encounters (SOAP notes) in Doctoring courses Written reflection on the potential hazards of hospitalization for older adult patients in the Geriatrics clerkship Written reflection formulating a plan for the medical, psychological, social, and spiritual needs of patients with advanced illness in the Geriatrics clerkship

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
	H. Demonstrate the ability to clearly and accurately summarize patient findings in verbal presentations and common written formats. I. Describe the indications and complications for all required procedures, and demonstrate the appropriate techniques when performing these procedures. J. Formulate accurate clinical hypotheses (differential diagnosis) based on an analysis of the patient's clinical presentation, the "patient's unique context," and knowledge of clinical epidemiology. K. Negotiate a plan of care with the patient utilizing shared decision-making techniques. L. Demonstrate the ability to employ a comprehensive, integrated, and multidisciplinary approach to the care of patients. M. Demonstrate appropriate medical records skills: a. Utilize an electronic health record. b. Record a comprehensive evaluation of a new patient, including the creation of a patient problem list. c. Record an organized and complete patient progress note appropriate for the patient's age and gender.	Small-group exercises in Doctoring and Biomedical Sciences courses Oral report from progress notes documenting examples of office visits for patients with acute, chronic, and multiple medical problems, and for preventive services visits in the Family Medicine clerkship Electronic medical records manipulation in multiple clerkship settings Training and demonstration of skill in Motivational Interviewing during the Medicine and Behavior course

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
MEDICAL KNOWLEDGE: Students must be able to explain the basis for medical practice at the molecular, cellular, organ, whole body, environmental, and psychosocial levels for states of health and disease based upon current understanding and emerging advances in contemporary medicine. Students must be capable of using this information to diagnose, manage, and present the common health problems of individuals, families, and communities. Students should be able to develop a differential list, obtain additional investigations, choose and implement interventions with consultation and referral as needed. In addition, students must be able to propose a diagnosis, analyze the outcomes of interventions, utilize prevention strategies, monitor patient progress, share information with others, and adjust therapy according to results.	A. Describe the development, structure, and function of the healthy human body and each of its major organ systems at the macroscopic, microscopic, and molecular levels. B. Recognize and discuss the implications of altered structure and function (pathology and pathophysiology) of the body and its major organ systems in various diseases and conditions. C. Identify changes in the structure and function of the human body associated with the aging process, and be able to distinguish normal changes associated with aging from those that denote disease. D. Describe basic bio-behavioral and clinical science principles used to analyze and solve problems related to the diagnosis, treatment, and prevention of disease. E. Recognize the scientific basis of health, disease, and medicine in the management of common, chronic, and high-impact conditions. F. Describe normal human psychosocial development across the life span, and recognize deviations requiring further evaluation and intervention. G. Discuss the application of psychodynamic theories of human thought and behavior in describing and analyzing patient behavior.	

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
	H. Demonstrate the effective use of pharmacotherapeutic agents and other therapeutic modalities. I. Demonstrate the ability to acquire new data and information and to critically appraise its validity and applicability.	
PRACTICE-BASED LEARNING AND IMPROVEMENT: Students must be able to investigate and evaluate patient care practices, appraise, and assimilate scientific evidence to improve patient care practices. Students must 1) analyze practice experience using a systematic methodology; 2) locate, appraise and assimilate evidence from scientific studies related to their patients' health problems; 3) obtain and use information about the patient population; 4) apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness; 5) use information technology to manage information and access medical information in support of their own education and the learning of other students.	A. Employ the principles of Practice-based Quality Improvement including the investigation, evaluation, and systematic analysis of one's clinical practices and practice population. B. Obtain and utilize public health information (demographic, cultural, and socioeconomic information) to improve the health of the community and/or practice. C. Recognize and demonstrate the ability to address the unique needs of patients from underserved environments. D. Apply the principles and methods of Evidence-Based Medicine to acquire, appraise, and assimilate new clinical information to improve patient care. E. Demonstrate knowledge of learning styles, preferences, and strategies to facilitate lifelong learning. F. Demonstrate knowledge of the occurrence of medical errors/ adverse events throughout the continuum of care, and demonstrate appreciation for the culture of patient safety.	Written reflection in Doctoring 1 with portfolio entry and feedback Summative OSCE Graduation OSCE Written reflection in Geriatrics clerkship

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Medical Schools in the United States and Canada

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A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
INTERPERSONAL AND COMMUNICATION SKILLS: The ability to engage and communicate with a patient and to build a physician-patient relationship for the purposes of information gathering, guidance, education, and support. This competency includes the ability to interact with patients and their families under a broad range of personal and clinical circumstances. It necessarily includes the ability to also build effective* relationships with peers, teachers, health care professionals, and others who may be involved in the care of patients and in the education thereof. (From: AAMC Recommendations for Clinical Skills Curricula for undergraduate medical education. *our addition)	A. Demonstrate respect, empathy, compassion, responsiveness, and concern regardless of the patient's problems or personal characteristics. B. Communicate diagnostic information and reasoning, intervention options, and a suggested plan of care with truthfulness, sensitivity, and empathy. C. Demonstrate effective oral communication skills with colleagues and other health professionals. D. Demonstrate effective written communication with colleagues and other health professionals. E. Demonstrate appropriate and effective use of alternative communication methods including, but not limited to, telephone and electronic methods. F. Evaluate health literacy by assessing patient's comprehension of verbal and written health information, and assist patients in obtaining and understanding health information. G. Recognize and respond professionally to various common forms of behavioral and emotional presentations. H. Elicit and constructively provide performance feedback with patients and other health care professionals (including situations of medical error and conflict resolution).	Standardized patient interactions in Doctoring 1 and 2 with both patient feedback and faculty facilitator feedback Formative OSCE performance with feedback from both patients and faculty observers Oral presentations of clinical topics from basic sciences orientation with faculty, peer, and self-assessment Peer and self-assessment of skill in small-group interpersonal communication Observation by preceptor and clerkship faculty Summative OSCE Written reflection on patient interactions and self-assessment

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
	I. Recognize and evaluate the ethical and legal issues involved in patient-doctor communication. J. Illustrate effective end-of-life communication. K. Demonstrate culturally and linguistically appropriate interviewing skills with patients from diverse backgrounds (inc. appropriate use of an interpreter).	

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
PROFESSIONALISM: Students must recognize the powerful impact of their professional attitudes and behavior on others, and consistently demonstrate high standards of excellence, duty, and accountability to the patient. Students must be responsible, reliable, dependable, and will demonstrate integrity, honesty, courtesy, and self-discipline in both the classroom and the clinical setting. Students must approach the practice of medicine with an awareness of personal limits, strengths, weaknesses, and vulnerabilities while working to find ways to overcome and adapt to them by establishing an appropriate balance for personal and professional commitments, setting clear objectives for lifelong learning, exploiting new opportunities for intellectual growth and professional enlightenment, and applying knowledge gained to the practice of medicine. The domain encompasses respect for patient rights and privacy in accord with the inherent value in the humanity of all patients, emphasizing the importance of rigorous adherence to established policies while maintaining an awareness of ethical and legal issues in medical practice.	A. Formulate and use strategies to support lifelong learning to remain current with advances in medical knowledge and practice (e.g., medical information data bases), utilizing technology to record, research, present, critique, and manage medical information. B. Demonstrate respect for the contributions of medical colleagues, other health care professionals, agencies, and families to the health of the individual and the health of the community. C. Recognize one's personal abilities and limitations, knowing when to request assistance. D. Display professionalism, high ethical standards, and integrity in relationships in all aspects of medical practice, especially with respect to confidentiality, informed consent, and justice. E. Utilize basic ethical principles including autonomy, beneficence non-malfeasance, and justice in the care of each patient. (From patient centeredness; with modifications.) F. Practice self-evaluation and reflection concerning cultural, moral, and ethical issues encountered in the care of patients and the practice of medicine, identifying biases, perceived differences between practitioners and patients, and employing a nonjudgmental approach to patient care.	Evaluation will include detail about various forms of lifelong learning including print, electronic, communities of practice, networking, etc. that support professional practice. Potential for checklist format. Peer, facilitator, and self-assessment of professional behaviors in small-group sessions for Clinical Anatomy, Microanatomy, Physiology, Pathology, Pharmacology, Microbiology, Doctoring 1 and Doctoring 2 Standardized patient assessment of professional behaviors in Doctoring 1 and Doctoring 2 Written reflection on ethical issues in multiple clerkships including geriatrics and pediatrics

GENERAL COMPETENCY	EDUCATIONAL PROGRAM OBJECTIVES	OUTCOME MEASURE(S)
SYSTEMS-BASED PRACTICE: Students must demonstrate an awareness of the larger context and system of health care including the types of medical practice and delivery systems, cost-effective health care and resource allocation that does not compromise the quality of care. Students must be advocates for quality patient care and must work in interprofessional health care teams to assess, coordinate, enhance, and improve patient safety and patient care.	A. Demonstrate basic knowledge of the health care delivery system in the community including health care providers, hospitals, facilities, home health, and community agencies. B. Demonstrate an understanding of the role of the physician in working with home health and community agencies to benefit patients. C. Demonstrate the ability to work effectively as a member of a health care team. D. Demonstrate respect for the roles of other health care providers and the need to collaborate in caring for individual patients and communities. E. Advocate for and assist patients in coordinating care and in dealing with system complexities. F. Recognize that errors occur in providing health care, and how providers and system flaws contribute to hazards in care; seeks to improve systems and prevent future errors.	Knowledge-based examinations Oral presentations Observation by clinical faculty Staff evaluation of students on required clerkships; assessment of student performance in Community Medicine clerkship 360-degree evaluation Observational assessment by faculty office staff and others (including learners from medicine and other professions) Observational assessment by clerkship faculty, staff, and patients

Appendix E
University of Central Florida College of Medicine

Competencies

GENERAL COMPETENCY: MEDICAL KNOWLEDGE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate knowledge of the normal structure and function of the body (as an intact organism), and of each of its major organ systems across the life span.	Written exam (MCQ) Written exam (report/essay) Lab exam/practicum Oral presentation Team-based performance Clinical skills exam Peer evaluation Clerkship in-training evaluation NMBE Subject Exam
Demonstrate knowledge of the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis.	Written exam (MCQ) Team-based performance NMBE Subject Exam
Demonstrate knowledge of the various causes of maladies (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic), and the ways in which they operate on the body (pathogenesis).	Written exam (MCQ) Team-based performance NMBE Subject Exam
Demonstrate knowledge of the altered structure and function (pathology and pathophysiology) of the body and its major organ systems that are seen in various diseases and conditions.	Written exam (MCQ) Team-based performance NMBE Subject Exam

GENERAL COMPETENCY: MEDICAL KNOWLEDGE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate understanding of the power of the scientific method in establishing the causation of disease, and efficacy of traditional and nontraditional therapies.	Written exam (MCQ) Written exam (report/essay) Lab exam/practicum Oral presentation Team-based performance Clinical skills exam
Demonstrate understanding of the scientific basis and interpretation of common diagnostic modalities, including imaging, electrocardiograms, blood and urine chemistries, pathologic studies, and functional assessment tests. Discuss the indications, contraindications, and cost-effectiveness of common diagnostic studies.	Written exam (MCQ) Written exam (report/essay) Lab exam/practicum Oral presentation Team-based performance Clinical skills exam Clerkship in-training evaluation NMBE Subject Exam

GENERAL COMPETENCY: PATIENT CARE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the ability to elicit accurate comprehensive and focused medical histories that cover all essential aspects of the history, including issues related to age, gender, sexuality, and socio-economic status using a medical interpreter when appropriate.	Oral presentation Clinical skills exam OSCE Direct observation Clerkship in-training evaluation NMBE Clinical Skills Exam

GENERAL COMPETENCY: PATIENT CARE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the ability to perform both a complete and an organ system specific examination, including a mental status examination.	Clinical skills exam OSCE Direct observation Clerkship in-training evaluation NMBE Clinical Skills Exam
Demonstrate the ability to perform routine technical procedures.	Clinical skills exam OSCE Direct observation Clerkship in-training evaluation
Demonstrate the ability to interpret the results of commonly used diagnostic procedures.	Written exam (MCQ) Written exam (report/essay) OSCE/SP Direct observation Clerkship in-training evaluation NMBE Subject Exam
Demonstrate the ability to identify the most frequent clinical, laboratory, roentgenologic, and pathologic manifestations of common maladies.	Written exam (MCQ) Written exam (report/essay) OSCE/SP Direct observation Clerkship in-training evaluation
Demonstrate the ability to reason deductively in solving clinical problems and the ability to evaluate the patient's medical problems, and formulate accurate hypotheses using deductive reasoning. Demonstrate the ability to use information from patient histories, physical exams, and auxiliary studies to test initial hypotheses/differential diagnoses.	OSCE/SP Direct observation Clerkship in-training evaluation

GENERAL COMPETENCY: PATIENT CARE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the ability to recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions regardless of etiology, and institute appropriate initial therapy.	Clinical skills exam OSCE/SP Direct observation Clerkship in-training evaluation
Demonstrate the ability to recognize and outline an initial course of management for patients with serious conditions requiring critical care.	OSCE/SP Direct observation Clerkship in-training evaluation
Demonstrate knowledge about relieving pain and ameliorating the suffering of patients.	Written exam (MCQ) OSCE/SP Direct observation Clerkship in-training evaluation
Demonstrate the ability to identify factors that place individuals at risk for disease or injury, select appropriate tests for detecting patients at risk for specific diseases or in the early stage of disease, and determine strategies for responding appropriately.	Clinical skills exam OSCE/SP Direct observation Clerkship in-training evaluation
Demonstrate appropriate techniques for performing Basic Life Support and Advanced Life Support.	Clinical skills exam Direct observation Clerkship in-training evaluation

GENERAL COMPETENCY: SYSTEM-BASED PRACTICE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate knowledge of the important non-biological determinants of poor health and the economic, psychological, social, religious, historical, and cultural factors that contribute to the development and/or continuation of maladies.	Written exam (MCQ) Team-based performance Clinical skills exam Peer evaluation Clerkship in-training evaluation NMBE Subject Exam

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Medical Schools in the United States and Canada

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Medical Schools in the United States and Canada

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GENERAL COMPETENCY: SYSTEM-BASED PRACTICE

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate knowledge of the epidemiology of common maladies within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those maladies.	Written exam (MCQ) Clerkship in-training evaluation NMBE Subject Exam
Demonstrate knowledge of the unique health care needs of ethnically diverse populations and communities.	Written exam (MCQ) Team-based performance Clinical skills exam NMBE Subject Exam
Demonstrate understanding of basic issues for promoting health and preventing disease and apply this understanding to patient management and teaching patients the importance of preventive medicine, health promotion, and wellness.	Written exam (MCQ) Log book
Demonstrate a commitment to provide care to patients who are unable to pay, and advocate for access to health care for members of traditionally underserved populations.	Participation in service learning activities
Demonstrate knowledge of various approaches to the organization, financing, and delivery of health care and knowledge of the global health care delivery system in the community including physicians, hospitals, outpatient centers, home health agencies, community agencies, and government agencies in that system	
Demonstrate an understanding of the threats to medical professionalism posed by the conflicts of interest inherent in various financial, governmental, and organizational arrangements for the practice of medicine.	Written exam (MCQ)

GENERAL COMPETENCY: PRACTICE-BASED LEARNING & IMPROVEMENT

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the ability to retrieve (from electronic databases and other resources), manage, and utilize biomedical information for solving problems and making decisions that are relevant to the care of individuals and populations.	Written exam (report/essay) Lab exam/practicum Oral presentation Clerkship in-training evaluation

GENERAL COMPETENCY: PRACTICE-BASED LEARNING & IMPROVEMENT

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate an understanding of evidence-based medicine (EBM) with respect to formulating patient-based questions, efficiently searching literature databases, appraising the quality of studies, applying the results of a literature search, and using information about their own population of patients to direct patient care.	Written exam (MCQ) Written exam (report/essay) Lab exam/practicum Oral presentation Clerkship in-training evaluation
Demonstrate an understanding of the principles and method of Practice-Based Learning and Improvement that involves investigation and evaluation of one's own patient care, appraisal and assimilation of scientific evidence, and improvements in the continuum of patient care.	Clerkship in-training evaluation
Demonstrate an understanding of the need and commitment to engage in lifelong learning to stay abreast of relevant scientific advances, especially in the disciplines of genetics and molecular biology.	Written exam (report/essay) Lab exam/practicum Oral presentation Clerkship in-training evaluation

GENERAL COMPETENCY: ETHICS & PROFESSIONALISM

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate knowledge of the theories and principles that govern ethical decision making, and of the major ethical dilemmas in medicine, particularly those that arise at the beginning and end of life, and those that arise from the rapid expansion of knowledge of genetics.	Written exam (MCQ) Written exam (report/essay) Team-based performance Clinical skills exam Peer evaluation Clerkship in-training evaluation NMBE Subject Exam
Provide compassionate treatment of patients and respect for their privacy and dignity.	Clinical skills exam Direct observation Clerkship in-training evaluation

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Medical Schools in the United States and Canada

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A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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GENERAL COMPETENCY: ETHICS & PROFESSIONALISM

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate honesty and integrity in all interactions with patients' families, colleagues, and others with whom physicians must interact in their professional lives.	Team-based performance Clinical skills exam Peer evaluation Direct observation Clerkship in-training evaluation
Advocate at all times the interests of one's patients over one's own interests.	Direct observation Clerkship in-training evaluation
Demonstrate an understanding of, and respect for, the roles of other health care professionals, and of the need to collaborate with others in caring for individual patients and in promoting the health of defined populations.	Team-based performance Clinical skills exam Peer evaluation Clerkship in-training evaluation
Demonstrate the capacity to recognize and accept limitations in one's knowledge and clinical skills, use self-evaluation, constructive feedback as part of the peer community, moral reflection, and ethical reasoning to form the basis for a self-directed, lifelong engagement in the responsible, committed, compassionate practice of medicine, and a commitment to continuously improve one's knowledge and ability.	Written exam (report/essay) Team-based performance Clinical skills exam Peer evaluation Clerkship in-training evaluation

GENERAL COMPETENCY: INTERPERSONAL & COMMUNICATIONS SKILLS

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the ability to convey presence, build rapport, and employ active listening to communicate compassionately, effectively, and in culturally and emotionally appropriate ways, both verbally and in writing, with patients, their families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities.	Clinical skills exam OSCE Direct observation Clerkship in-training evaluation
Demonstrate the ability to establish effective relationships with patients and their families that enable one to provide reassurance, give encouragement and support, and convey empathy and caring.	Clinical skills exam OSCE Direct observation Clerkship in-training evaluation

GENERAL COMPETENCY: INTERPERSONAL & COMMUNICATIONS SKILLS

EDUCATIONAL PROGRAM OBJECTIVE(S)	OUTCOME MEASURE(S)
Demonstrate the traits of collegiality, flexibility, adaptability, reliability, punctuality, responsibility, and work effectively with others as a member or leader of a health care team or other professional group.	Clinical skills exam OSCE Direct observation Clerkship in-training evaluation

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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A Snapshot of the New and Developing
Medical Schools in the United States and Canada

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Appendix F
Oakland University William Beaumont School of Medicine

Curricular Objectives and Core Competencies

Patient-Centered Care and Clinical Skills: Graduates are expected to provide patient care that is compassionate, appropriate, and effective for the promotion and maintenance of health, and the restoration to health of patients who are ill. The student will have demonstrated the ability to:

PC1.   Form an effective therapeutic relationship with patients, recognizing that the dimensions of diversity include race, ethnicity and culture, socioeconomic status, age, physical and emotional well-being, gender and gender identity, and sexual orientation, and that these play major roles in the patient's approach to health care.

PC2.   Elicit and record a complete and organized history.

PC3.   Perform and record a complete physical examination.

PC4.   Interpret accurately the results of commonly ordered clinical tests, including electrocardiograms, laboratory tests, and radiology studies.

PC5.   Generate and prioritize an initial differential diagnosis based upon key history, physical, and laboratory findings.

PC6.   Develop evidence-based diagnostic and treatment strategies that are cost-effective using appropriate information technologies.

PC7.   Perform procedures expected of primary care physicians.

PC8.   Identify and initiate initial treatment plans for emergency and life-threatening situations.

PC9.   Make decisions in the context of uncertainty, mindful of the risks of doing so.

PC10. Apply the principles of pain management to reduce patient suffering.

PC11. Manage patients, mindful of salient legal, ethical, spiritual, and psychosocial constructs.

Medical Knowledge: Graduates are expected to understand the importance of scientific discovery and to apply the scientific foundations of medicine to evidence-based practice. The student will have demonstrated mastery of:

MK1.   The normal structure and function of the human body at molecular, cellular, tissue, and anatomic levels.

MK2.   The pathogenesis of disease.

MK3.   Pharmacological and other therapeutic interventions.

MK4.   Behavioral aspects of primary care medical practice, emphasizing the interrelationships between mind and body.

MK5.   The principles of disease prevention and health maintenance.

MK6.   The critical appraisal of information that is the foundation of an evidence-based practice of medicine.

Practice-Based Learning and Improvement: Graduates are expected to commit to lifelong learning and improvement. The student will have demonstrated the ability to:

PL1.   Study and evaluate patient care practices in a reflective manner.

PL2.   Appraise and appropriately assimilate scientific evidence into decision-making and problem-solving.

PL3.   Apply the principles of information literacy to continuous quality improvement.

PL4.   Elicit feedback about performance and develop and implement an improvement plan.

PL5.   Self-assess strengths and weaknesses and develop a plan for self-directed learning and improvement.

Interpersonal and Communication Skills: Graduates are expected to demonstrate interpersonal skills that facilitate effective communication with patients, families, and other members of the health care team. The student will have demonstrated the ability to:

IC1.   Listen attentively and effectively to patients, patients' family members, colleagues, and members of the health care team.

IC2.   Communicate effectively and compassionately with patients and their families using appropriate verbal and nonverbal communication skills.

IC3.   Demonstrate sensitivity and respect for individuals of diverse cultural and social backgrounds.

IC4.   Collaborate with peers, staff, faculty, and other health care providers.

IC5.   Educate patients and their families, peers, other health professionals, and the public commensurate with the audience's cultural and educational backgrounds.

Professionalism: Graduates are expected to approach medicine with integrity and respect for human dignity and diversity and demonstrate awareness of, and commitment to, ethical principles. The student will have demonstrated the ability to:

PR1.   Place the doctor/patient relationship above self-interest.

PR2.   Conduct oneself with integrity, honesty, and self-discipline.

PR3.   Project a professional image in interactions with patients, peers, faculty, residents, co-workers, and others.

PR4.   Identify and manage conflicts of interest.

PR5.   Apply ethical principles to the study and practice of medicine.

PR6.   Maintain composure in stressful situations.

PR7.   Respect generally accepted boundaries for professional relationships.

PR8.   Respect confidentiality and privacy.

PR9.   Maintain physical and mental health, and recognize how and when to seek help.

Systems-Based Care: Graduates are expected to demonstrate an awareness of the larger context and system of health care, and to call effectively upon other resources in the health care system to provide optimal care. The student will have demonstrated the ability to:

SC1. Identify patients at risk for inadequate medical services and develop plans to engage resources to ensure appropriate care.

SC2. Describe policies, finances, and delivery of health care in the United States and compare these attributes with other health care systems.

SC3. Assess accurately the strengths and weaknesses of colleagues and the patient care environment to provide constructive feedback for learning and improvement.

Appendix G
Cooper Medical School of Rowan University

Institutional Learning Objectives

MK 1: Medical Knowledge: Students will demonstrate knowledge of existing and evolving scientific information and its application to patient care.

- Demonstrate a strong basic science foundation in the understanding of health and disease
- Perform a complete history and physical exam
- Demonstrate a recognition of the multiple factors that affect patients including genetic background, culture, nutrition, age, and societal circumstances
- Demonstrate the ability to access and critically evaluate current medical information and scientific evidence and apply this knowledge to clinical problem-solving
- Demonstrate current knowledge of public health and its application to patient care

PC2: Patient Care: Students will demonstrate an ability to understand and provide care for common health problems that is considerate, compassionate, appropriate, and effective.

- Demonstrate appropriate clinical skills, critical thinking, medical decision making, and problem solving skills in the delivery of care including:
- Accurately obtaining and interpreting the history and physical exam
- Demonstrate the ability to use evidence-based medicine
- The ability to effectively use pharmacological and non-pharmacological methods
- Understand the use of consultants and expert opinion
- Demonstrate the appropriate use and interpretation of diagnostic studies
- Demonstrate the ability to make diagnostic and therapeutic decisions based on patient preferences and current scientific and clinical evidence
- Show the ability to synthesize pertinent information into priority-based differential diagnoses
- Develop and demonstrate the relevant procedural and clinical skills recognizing the appropriate indications, contraindications, and complications while respecting patient needs and preferences
- Develop, implement, and promote appropriate plans of disease prevention, management, and treatment using evidence-based medicine

P 3: Professionalism: Students will demonstrate a commitment to the profession of medicine and its ethical principles.

- Demonstrate humanism, compassion, integrity, and respect for others
- Demonstrate a respect for patient confidentiality and autonomy
- Show responsiveness and personal accountability to patients, society, and the practice of medicine
- Demonstrate the ability to respond to patient needs superseding self-interest
- Demonstrate sensitivity to broadly diverse patient populations
- Demonstrate the ability to recognize personal limitations and biases, know when and how to ask for help, and do so effectively
- Demonstrate the ability to effectively advocate for the health and the needs of the patient
- Show an understanding of the principles of medical ethics
- Demonstrate the ability to recognize and address disparities in health care

ICS 4: Interpersonal and Communication Skills: Students will demonstrate an ability to effectively communicate and collaborate with patients, families, and health care professionals.

- Communicate with the patient, the student will demonstrate the ability to:
- Obtain and gather appropriate medical interview data
- Utilize nonverbal communication cues
- Navigate difficult communication situations (e.g., delivering bad news, error reporting, and end-of-life discussions)
- Effectively use interpreters
- Apply active and receptive listening
- Implement culturally sensitive communication
- Understand the role of health literacy in communication
- Communicate about the patient, the student will demonstrate the ability to:
- Create, organize, and maintain legible, accurate, comprehensive, and timely medical records
- Establish effective information exchange with families and patients in difficult situations
- Develop effective communication with colleagues
- Effectively communicate with the health care team through accurate oral and written presentations
- Communicate about Medicine and Science, the student will demonstrate the ability to:
- Effectively and efficiently communicate and disseminate medical information
- Understand and demonstrate the fundamental principles of sound communication with members of the scientific and medical communities
- Prepare scholarly presentations

PLI 5: Practice-based Learning and Improvement: Students will demonstrate the ability to investigate and evaluate their care of patients, appraise and assimilate scientific evidence, and continuously improve patient care based on self-evaluation and lifelong learning.

- Demonstrate the ability to self-assess the strengths, deficiencies and limits of one's knowledge, and perform improvement activities
- Demonstrate the ability to engage in CMSRU, hospital, and community projects that benefit patients, society, and the practice of medicine
- Demonstrate the ability to identify, appraise, and assimilate evidence from scientific studies developing the skills of information literacy
- Demonstrate the ability to develop an appreciation of the importance and roles of members of the health care team and apply this understanding to improving patient care
- Demonstrate the ability to understand and apply the fundamental principles of patient safety and quality care
- Demonstrate the ability to comprehend the basic tenants of feedback and assessment, and use these for career long self-improvement

SBP 6: System-based Practice: Students will demonstrate an awareness of, and responsiveness to, the larger context and system of care delivery, and the ability to effectively utilize other resources in the system to provide optimal health care.

- Work effectively to coordinate patient care within the current health care system
- Incorporate risk-benefit analyses to care delivery
- Advocate for quality patient care
- Work in interprofessional teams to enhance patient safety, quality, and outcomes
- Appreciate and understand the methodologies used to reduce errors in care
- Recognize the value, limitations, and use of information technology in the delivery of care
- Understand the fundamental aspects of the economics and financing of care delivery regionally, nationally, and globally

SI 7: Scholarly Inquiry: Students will demonstrate an ability to frame structured questions, weigh evidence to test hypotheses, and critically review scientific, clinical care and research data to guide decision making.

- Demonstrate investigatory and analytical skills to seek and apply the best evidence in making patient care decisions
- Demonstrate the ability to identify and execute plans for answering research questions
- Demonstrate the ability to understand and implement the concept of academic integrity in research and scholarship
- Show development of skills that foster lifelong learning

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

HP 8: Health Partnership: Students will demonstrate the fundamental aspects of delivering high-quality, comprehensive, cost-effective and coordinated care in partnership with our underserved urban and rural populations.

- Demonstrate the ability to understand the relationship between local community circumstances and health status
- Demonstrate the ability to appreciate the health care needs of diverse patient populations, and develop care delivery strategies to address these differences
- Demonstrate the ability to develop the skills and attitude to work in partnership with members of the community to promote health, disease prevention, and chronic care management

TW 9: Learning and Working in Teams: Students will learn to work as team members in a coordinated effort that contributes to and supports improved patient care.

- Demonstrate the ability to understand and practice basic principles of interprofessional and multidisciplinary care
- Show an appreciation for the social and economic contexts in which patient care is delivered
- Demonstrate the ability to develop the skills to organize an effective health care team, while valuing individual skills and efforts

Appendix H
Hofstra North Shore-LIJ School of Medicine

Outcome Measures

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
MEDICAL KNOWLEDGE									
MK-1	Integrates molecular, biochemical, and physiologic mechanisms to explain how the body maintains homeostasis.	x	x					x	
MK-2	Explains the genetic, environmental, infectious, and nutritional causes of disease and their impact on how illness changes over the lifespan.	x							
MK-3	Explains how diversity of presentation, depending on gender, genetics, age, and duration of illness, produces different disease states and conditions.	x				x			
MK-4	Expresses understanding of how the scientific method is used to determine the cause, presentation, and spread of disease, and how to design and test the effectiveness of disease interventions.			x			x		
MK-5	Explains the scientific basis, interpretation, reliability, and validity of common diagnostic and therapeutic modalities.	x		x					x
MK-6	Evaluates the indications, contradictions, and cost-effectiveness of common diagnostic and therapeutic modalities for both individuals and populations.	x							

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
PATIENT CARE									
PC-1	Obtains an accurate, age- and gender-appropriate clinical history and performs both comprehensive and focused psychological and physical examinations effectively, efficiently and respectfully.			x		x			
PC-2	Performs basic clinical procedures safely and effectively while respecting patients' needs and concerns.					x			
PC-3	Records, researches, presents, critiques and manages clinical information effectively.						x		x
PC-4	Selects, justifies, and interprets clinical tests appropriately.	x		x		x			x
PC-5	Approaches clinical problems by identifying the salient issues, generating a biopsychosocial differential diagnosis, and explaining the clinical reasoning that justifies the differential diagnosis.			x		x			x
PC-6	Formulates and implements appropriate patient care strategies that incorporate a comprehensive, multidisciplinary approach.					x			x

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
PATIENT CARE									
PC-7	Formulates and communicates a patient's current health status and prognosis that is based upon an understanding of the patient, his/her caregivers, the natural history of disease, and treatment alternatives.					x			x
PC-8	Selects and begins appropriate initial therapy for patients with critical or life-threatening conditions.						x		
PC-9	Formulates and starts appropriate initial therapy for relief of pain, regardless of cause.	x				x			x
PC-10	Identifies and applies preventative, curative, and palliative measures that appropriately utilize health system resources.	x				x			x

INTERPERSONAL SKILLS & COMMUNICATION

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
IPSC-1	Engages effectively and compassionately with patients and their care-givers across a broad range of personal, clinical and cultural circumstances.					X			
IPSC-2	Educates patients and families as to the nature of their illness and treatment options.					X			
IPSC-3	Works collaboratively, effectively, and respectfully with consultants and members of the health care team.					X	X		
IPSC-4	Engages patients in conversations addressing behavior modification, prevention and wellness.					X			
IPSC-5	Presents scientific and clinical information clearly and cogently, both verbally and in writing.	X	X	X				X	X

PROFESSIONALISM

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
P-1	Identifies the ethical principles that govern the doctor-patient relationship.	X				X			
P-2	Recognizes opportunities to apply ethical principles in resolving common ethical dilemmas.	X				X			
P-3	Demonstrates respect for patients' dignity, individuality, privacy, and confidentiality in all verbal, written, and electronic communications.								
P-4	Demonstrates honesty and integrity in all professional interactions.								
P-5	Examines individual decisions from the perspectives of both a patient advocate and a just steward of society's resources.						X	X	X
P-6	Recognizes, accepts, and addresses learning needs and limitations, and appropriately seeks guidance and supervision.		X						
P-7	Seeks and readily accepts feedback from others and integrates constructive criticism/feedback effectively.		X						
P-8	Recognizes and manages the occurrence and impact of medical errors appropriately and accepts responsibility when appropriate.	X				X		X	X

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
PROFESSIONALISM									
P-9	Performs the administrative responsibilities of being a physician.		x		x				
P-10	Accepts the commitment to the professional life that balances concern for self and accountability, with the needs of patients, society, and the profession.		x				x		
P-11	Comprehends the threats to medical professionalism posed by conflicts of interest inherent in various financial, governmental, and organizational arrangements for the practice of medicine.	x							

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
PRACTICE BASED LEARNING & IMPROVEMENT									
PBLI-1	Retrieves, utilizes, and communicates information essential for identifying problems and making decisions that affect the care of individuals and populations.		x						
PBLI-2	Describes and applies the principles of evidence-based medicine (EBM).	x		x		x			x
PBLI-3	Applies principles of practice-based learning through mentored self-reflection, peer evaluation, and appraisal and assimilation of scientific evidence.		x				x		
PBLI-4	Values narrative, formative, summative, and reflective assessments and demonstrates that value by incorporating them into a plan for lifelong learning and continual professional improvement.		x						
PBLI-5	Uses and applies data and benchmarks to identify patient needs and to improve patient care.					x			

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

SYSTEMS BASED PRACTICE

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
SBP-1	Describes the various systems of care available for promoting health and preventing disease, and applies this knowledge to provide comprehensive patient care and education.	X							X
SBP-2	Considers cost effectiveness appropriately in individual patient care decisions.					X			X
SBP-3	Advocates broadly for groups of patients and communities.						X		
SBP-4	Works in interprofessional teams to enhance patient safety and improve patient care quality.							X	
SBP-5	Identifies various approaches to the organization, financing, and delivery of health care and recognizes how these systems differ at the community, national and global levels.	X							

RESEARCH & SCHOLARSHIP

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
RS-1	Accepts and values a commitment to engage in translational research and scholarship to advance healthcare.								
RS-2	Recognizes uncertainty and uses it to develop questions relevant to health and patient care.	X							X
RS-3	Develops creative, testable hypotheses about mechanisms of disease and/or the relationship of social, political and economic systems to health behaviors and outcomes.	X							
RS-4	Acquires information from multiple sources and applies it to address questions related to normal physiology, disease pathogenesis, public health, and health care delivery.						X		
RS-5	Analyzes data critically, resists premature closure, and reformulates hypotheses as new information is obtained.	X	X			X			X
RS-6	Communicates results of scholarly activity effectively, and responsibly considers peer evaluation of one's work.	X							
RS-7	Recognizes conflicts of interest inherent in research and displays the integrity necessary to manage those conflicts.					X			
RS-8	Understands community-engaged scholarship as applied to health care equity and quality.								

COMPETENCY BY EPO	EDUCATIONAL PROGRAM OBJECTIVES	FINAL ESSAY EXAM	PEARLS END OF COURSE FORM	STRUCTURE PRACTICAL EXAM	TIMELY COMPLETION OF FORMATIVE & ADMINISTRATIVE COMPONENTS	CLINICAL SKILLS ASSESSMENT	MENTORED CASEBOOK	POST SIMULATION QUESTIONS	POST CLINICAL SKILLS ENCOUNTER QUESTIONS
POPULATION HEALTH									
PH-1	Explains the principles of epidemiology that form the scientific basis for public health practice.	x						x	x
PH-2	Describes the epidemiology of common diseases within a defined population and the systematic approaches useful in reducing the incidence and prevalence of those diseases.	x							
PH-3	Recognizes the unique health care needs of diverse populations and communities, and modifies approaches to incorporate this diversity into patient care and community interventions.						x		
PH-4	Describes and accepts the role of physician in public health surveillance and public health improvement.								
PH-5	Identifies and applies the concept of "health determinants" at both the individual and population levels.								
PH-6	Utilizes culturally and linguistically appropriate services in both individual patient and population health encounters.					x			

Appendix I
University of South Carolina School of Medicine Greenville

LEARNING OUTCOMES

MEDICAL KNOWLEDGE

1. Demonstrate knowledge of the normal structure and function of the body and of each of its major organ systems across the life span.

2. Demonstrate knowledge of the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis.

3. Demonstrate knowledge of the various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of maladies and the ways in which they affect the body (pathogenesis).

4. Demonstrate knowledge of the altered structure and function (pathology and pathophysiology) of the body and its major organ systems that are seen in various diseases and conditions.

5. Demonstrate understanding of the power of the scientific method in establishing the causation of disease and efficacy of traditional and nontraditional therapies.

6. Demonstrate understanding of the scientific basis and interpretation of common diagnostic modalities, including imaging, electrodiagnostics, laboratory studies, pathologic studies, and functional assessment tests.

7. Demonstrate understanding of the indications, contraindications, and cost-effectiveness of common diagnostic studies.

PATIENT CARE

8. Demonstrate the ability to elicit accurate comprehensive and focused medical histories that cover all essential aspects of the history, including issues related to age, gender, sexuality, and socioeconomic status, and the use of a medical interpreter.

9. Demonstrate the ability to perform both a complete and focused organ system examination, including a mental status examination.

10. Demonstrate the ability to perform routine technical procedures.

11. Demonstrate the ability to interpret the results of commonly used diagnostic procedures.

12. Demonstrate the ability to identify the most frequent clinical, laboratory, imaging, and pathologic findings of common maladies.

13. Demonstrate the ability to reason deductively in solving clinical problems and formulating accurate hypotheses, and use information from patient histories, physical exams, and ancillary studies to test initial hypotheses.

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

A Snapshot of the New and Developing
Medical Schools in the United States and Canada

AAMC

14. Demonstrate the ability to formulate and implement appropriate management strategies (both diagnostic and therapeutic) for patients with common conditions including a comprehensive, multidisciplinary approach when indicated.

15. Use knowledge of managed care systems in making patient treatment plans and health care maintenance plans to assure care coordination across the continuum.

16. Demonstrate the ability to recognize patients with immediately life-threatening cardiac, pulmonary, or neurological conditions regardless of etiology, and institute appropriate initial therapy.

17. Demonstrate the ability to recognize and outline an initial course of management for patients with serious conditions requiring critical care.

18. Demonstrate knowledge about relieving pain and ameliorating the suffering of patients.

19. Demonstrate the ability to identify factors that place individuals at risk for disease or injury, select appropriate tests for detecting patients at risk for specific diseases or in the early stage of diseases, and determine strategies for responding appropriately.

20. Demonstrate appropriate techniques for performing Basic Life Support and Advanced Life Support.

SYSTEMS-BASED PRACTICE

21. Demonstrate knowledge of the important nonbiological determinants of poor health and of the economic, psychological, social, religious, historical, and cultural factors that contribute to the development and/or continuation of maladies.

22. Demonstrate knowledge of the epidemiology of common maladies within a defined population, and the systematic approaches useful in reducing the incidence and prevalence of those maladies.

23. Demonstrate knowledge of the unique health care needs of ethnically diverse populations and communities.

24. Demonstrate understanding of basic issues for promoting health and preventing disease, and apply this understanding to patient management and teaching patients the importance of preventive medicine, health promotion, and wellness.

25. Demonstrate a commitment to provide care to patients who are unable to pay, and advocate access to health care for members of traditionally underserved populations.

26. Demonstrate knowledge of various approaches to the organization, financing, and delivery of health care and knowledge of the global health care delivery system in the community, including physicians, hospitals, outpatient centers, home health agencies, community agencies, and government agencies in that system.

27. Demonstrate an understanding of the threats to medical professionalism posed by the conflicts of interest inherent in various financial, governmental, and organizational arrangements for the practice of medicine.

28. Demonstrate the ability to apply principles of quality improvement to a medical system.

29. Demonstrate the ability to evaluate and analyze actual or potential adverse events in a systematic fashion, especially to promote, measure, benchmark, and optimize patient safety and quality outcomes.

PRACTICE-BASED LEARNING AND IMPROVEMENT

30. Demonstrate the ability to retrieve (from electronic databases and other resources), manage, and utilize biomedical information for solving problems and making decisions that are relevant to the care of individuals and populations.

31. Demonstrate an understanding of evidence-based medicine with respect to formulating patient-based questions, efficiently searching literature databases, appraising the quality of studies, applying the results of a literature search, and using information about their own population of patients to direct patient care and assess comparative effectiveness of interventions.

32. Demonstrate an understanding of the principles and methods of Practice-Based Learning and Improvement that involves investigation and evaluation of one's own patient care, appraisal and assimilation of scientific evidence, and improvements in the continuum of patient care.

33. Demonstrate an understanding of the need and commitment to engage in lifelong learning to stay abreast of relevant scientific advances, especially in the disciplines of genetic and molecular biology.

PROFESSIONALISM

34. Demonstrate knowledge of the theories and principles that govern ethical decision making, and of the major ethical dilemmas in medicine.

35. Provide compassionate treatment to patients and respect for their privacy, dignity, and personal beliefs.

36. Demonstrate honesty and integrity in all interactions with patients and their families, colleagues, and others with whom physicians must interact in their professional lives.

37. Advocate at all times the interests of one's patients over one's own interests.

38. Demonstrate an understanding of, and respect for, the roles of other health care professionals, the need to collaborate with others in caring for individual patients, and promoting the health of defined socioeconomic, ethnic, and at-risk populations.

39. Demonstrate the capacity to recognize and accept limitations in one's knowledge and clinical skills, and commit to continuously improve one's abilities through lifelong learning, self-evaluation, acceptance of constructive feedback, moral reflection, and ethical reasoning.

40. Demonstrate commitment to a self-directed, lifelong engagement in the responsible, compassionate, and ethical practice of medicine.

INTERPERSONAL AND COMMUNICATION SKILLS

41. Demonstrate the ability to convey presence, build rapport, and employ active listening to communicate compassionately, effectively, and in culturally and emotionally appropriate ways, both verbally and in writing, with patients, their families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities.

42. Demonstrate the ability to compassionately and effectively listen to, and communicate with, patients and their families to establish caring relationships that are emotionally and culturally appropriate.

43. Demonstrate the ability to responsibly and respectfully work with all members of the health care team, with a goal to establish supportive relationships that show honor to fellow colleagues.

Appendix J
Texas Tech University Health Sciences Center Paul L. Foster School of Medicine

Institutional Learning Goals by ACGME Competencies

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
MEDICAL KNOWLEDGE		
	Describe the normal structure and function of the human body (MK-1)	Tank-side Grand Rounds assessment forms [a] M1 & M2 Weekly formative examinations [b] M1 & M2 End-of-Unit examinations [c] M1 End-of-Year NBME customized examination [d] M1, M2 & M3 OSCEs [e] M3&M4 Clerkship assessment forms [f] USMLE 1 & 2
	Compare and contrast normal variation and pathological states in the structure and function of the human body (MK-2)	Tank-side Grand Rounds assessment forms [a] M1 & M2 Weekly formative examinations [b] M1 & M2 End-of-Unit examinations [c] M1 End-of-Year NBME customized examination [d] M1, M2 & M3 OSCEs [e] M3&M4 Clerkship assessments [f] USMLE 1 & 2
	Describe analytic methods (laboratory, quantitative methods, Evidence-Based medicine principles) and apply them in patient care (MK-3)	Tank-side Grand Rounds assessment forms [a] M1 & M2 Weekly formative examinations [b] M1 & M2 End-of-Unit examinations [c] M1 End-of-Year NBME customized examination [d] SCI examinations [g] M3&M4 Clerkship assessments [f] USMLE 1 & 2

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
MEDICAL KNOWLEDGE		
	Apply the scientific method for the acquisition of new knowledge, for the critical appraisal of published knowledge, and to problem solving in the laboratory and patient care (MK-4)	Tank-side Grand Rounds assessment forms [a] M3&M4 Clerkship assessments [f] SARP Projects (3 assessments) [h]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PATIENT CARE		
Care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.	Categorize, describe, and use various therapeutic methods in the treatment of illness and disease (PC-1)	M1 & M2 Weekly formative examinations [b] M1 & M2 End-of-Unit examinations [c] M1 End-of-Year NBME customized examination [d] SCI Core Activity Forms M3&M4 Clerkship assessment forms [f] USMLE 1 & 2
	Identify life-threatening conditions that require immediate and specific interventions (PC-2)	M1 & M2 Weekly formative examinations [b] M1 & M2 End-of-Unit examinations [c] M1 End-of-Year NBME customized examination [d] M1, M2 & M3 OSCEs [e] M3&M4 Clerkship assessment forms [f] USMLE 1 & 2
	Provide precise, timely and comprehensive patient care that is documented appropriately (PC-3)	M1, M2 & M3 OSCEs [e] M3&M4 Clerkship assessment forms [f] USMLE 1 & 2 Tank-side Grand Rounds assessment forms [a]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PATIENT CARE		
	Perform and accurately record findings and observations derived from physical examinations (PC-4)	Tank-side Grand Rounds assessment forms[a] Medical Skills course SOAP Note feedback M1, M2 & M3 OSCEs[e] M3&M4 Clerkship assessment forms[f] USMLE 1 & 2 SCI Core Activities forms[i]
	Choose appropriate laboratory tests and/ or diagnostic procedures and accurately interpret results (PC-5)	M1 & M2 Weekly formative examinations[b] M1 & M2 End-of-Unit examinations[c] M1 End-of-Year NBME customized examination[d] M1, M2 & M3 OSCEs[e] M3&M4 Clerkship assessment forms[f] USMLE 2
	Generate a comprehensive list of diagnostic considerations based on the integration of historical, physical and laboratory findings (PC-6)	Tank-side Grand Rounds assessment forms[a] Medical Skills course SOAP Note feedback M1, M2 & M3 OSCEs[e] M3&M4 Clerkship assessment forms[f] USMLE 1 & 2

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
INTERPERSONAL COMMUNICATION SKILLS		
Students must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.	Communicate clearly, respectfully and compassionately with patients, families, colleagues, and members of the health care team (ICS-1)	Tank-side Grand Rounds assessment forms[a] M3&M4 Clerkship assessment forms[f] SCI Preceptor assessment forms[j] Master's Colloquium assessment forms[k] Patient assessments --Medical Skills Course & M3-4 Clerkship Assessment forms[f] M1, M2 & M3 OSCEs[e]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
INTERPERSONAL COMMUNICATION SKILLS		
	Collect and record pertinent elements of the clinical history in a concise and accurate manner (ICS-2)	Tank-side Grand Rounds assessment forms[a] Medical Skills course SOAP Note feedback M3&M4 Clerkship assessment forms[f] SCI Preceptor assessment forms[j] M1, M2 & M3 OSCEs[e]
	Communicate knowledge, interpretation and recommendations orally and/or in writing to a wide range of professional or lay audience in culturally appropriate ways (ICS-3)	M3&M4 Clerkship assessment forms[f] Tank-side Grand Rounds assessment forms[a] SCI Preceptor assessment forms[j] Master's Colloquium assessment forms[k] Patient assessment forms (Medical Skills & M3&M4 Clerkships)[l] M1, M2 & M3 OSCEs[e] SARP Project assessment forms[h]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PROFESSIONALISM		
Students must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.	Describe fundamental ethical principles and how they apply in patient care and medical practice (Prof-1)	M1 End-of-Year NBME customized examination[d] USMLE Step 1 & 2 M1, M2 & M3 OSCEs[e] Ethics Reflection Exercise in Masters Colloquium M3&M4 Clerkship assessment forms[f]
	Recognize and avoid the conflicts of interest that can arise in medical practice (Prof-2)	M3&M4 Clerkship assessment forms[f] Patient assessment forms (Medical Skills & M3&M4 Clerkships)[l]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PROFESSIONALISM		
	Display compassion in interactions with all patients regardless of race, gender, ethnicity, sexual orientation, socioeconomic status and disability (Prof-3)	Tank-side Grand Rounds assessment forms[a] M3&M4 Clerkship assessment forms[f] SCI Preceptor assessment forms[j]
	Apply the highest ethical standards in all professional activities (Prof-4)	M3&M4 Clerkship assessment forms[f] Master's Colloquium assessment forms[k]
	Demonstrate respect for the beliefs, opinions and privacy of patients, families, and members of the health care team (Prof-5)	M3&M4 Clerkship assessment forms[f] SCI Preceptor assessment forms[j] Patient assessment forms (Medical Skills & M3&M4 OSCEs)[l] Master's Colloquium assessment forms[k] Small Group assessment forms[m]
	Demonstrate scrupulous honesty in all professional matters (Prof-6)	M3&M4 Clerkship assessment forms[f] SCI Preceptor assessment forms[j]
	Provide compassionate and culturally appropriate care in all stages of the life cycle (Prof-7)	M3&M4 Clerkship assessments[f] SCI Preceptor assessment forms[j] Patient assessment forms (Medical Skills & M3&M4 OSCEs)[l]
	Preserve patient's dignity in all interactions (Prof-8)	M3&M4 Clerkship assessments[f] SCI Preceptor Assessments[j] Patient assessment forms (Medical Skills & M3&M4 OSCEs)[l]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PROFESSIONALISM		
	Demonstrate advocacy for the interests and needs of patients (Prof-9)	M3&M4 Clerkship assessment form[f]

ACGME COMPETENCY	LEARNING OBJECTIVE STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PRACTICE-BASED LEARNING		
. Students must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-assessment and life-long learning.	Use inductive and deductive reasoning as appropriate in the diagnosis and management of disease (PBL-1)	Tank-side Grand Rounds assessment form[a] M1 & M2 Weekly formative examinations[b] M1 & M2 End-of-Unit examinations[c] M1, M2 & M3 OSCEs[e] M3&M4 Clerkship assessment forms[f]
	Use epidemiological and bio-statistical methods to analyze and solve clinical problems (PBL-2)	M1 End-of-Year NBME customized examination[d] USMLE 1 & 2 SCI Core Activities form[i] SCI examinations[g]
	Identify the need to employ self-initiated learning strategies (problem definition, resource identification, critical appraisal) when approaching new challenges, problems, or unfamiliar situations (PBL-3)	Tank-side Grand Rounds assessment form[a] M3&M4 Clerkship assessment forms[f] SARP Assessment forms[h] Master's Colloquium Assessment forms[k] SCI Core Activity Form[i]
	Recognize when to take responsibility and when to seek assistance based on one's position, training and experience (PBL-4)	Small Group assessment forms[m] M3&M4 Clerkship assessment forms[f]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
PRACTICE-BASED LEARNING		
	Demonstrate sophistication in the use of digital resources for patient care, self-education, and the education of patients and their families (PBL-5)	Tank-side Grand Rounds assessment form [a] SARP Assessment forms [h] Masters' colloquium assessment form [k] M3&M4 Clerkship assessment forms [f]
	Demonstrate the application of a scheme inductive approach to arrive at a focused differential diagnosis (PBL-6)	Small group WCE assessment M1, M2 & M3 OSCEs [e] M3&M4 Clerkship assessment forms [f]
	Demonstrate self-awareness and the skills necessary for life-long learning (PBL-7)	Tank-side Grand Rounds assessment form [a] SARP projects assessment form [h] M3&M4 Clerkship assessment forms [f]

ACGME COMPETENCY	LEARNING OBJECTIVE: STUDENTS WILL BE ABLE TO:	OUTCOME ASSESSMENT EXAMPLES
SYSTEMS-BASED PRACTICE		
Practice, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value	Describe the components of social structure (e.g., family, neighborhood, community) and the role each plays in health behavior, disease prevention, and the treatment of illness (SBP-1)	SCI Core Activity Form [i] SCI examinations [g] M3&M4 Clerkship assessment forms [f]
	Describe the components of the national health system and its funding and how this system affects individual and community health (SBP-2)	SCI Core Activity Form [i] SCI examinations [g] M3&M4 Clerkship assessment forms [f]

a   Tank-side Rounds Assessment form assesses knowledge, investigatory & analytic thinking, attitudes, and communication skills. The associated Donor Electronic Medical Record assessment includes documentation, scheme usage, and analytic thinking. Both forms are intended to assess self-assessment and life-long learning skills.

b   Weekly formative examinations are used primarily to assess knowledge and skills acquired in the Scientific Principles of Medicine course.

c   End-of-unit summative examinations are used primarily to assess knowledge acquired in each SPM unit and the corresponding skills learned in the Medical Skills course. Methods of examination include written exams, computer-based exercises, and demonstrations of skills using appropriate clinical simulator devices. In addition, students at PLFSOM participate in "progress testing" and complete two examinations on an annual bases beginning at matriculation. These are the Diagnostic Pattern Recognition Examination (70 items) and the Clinical Data Interpretation Examination (80 items). This examination was developed at Southern Illinois University School of Medicine and is being used by a consortium of medical schools from around the United States.

d   M1 students take an NBME customized examination to assess their acquired knowledge. The test items are selected to cover the organ system units covered in SPM to date and to cover epidemiology and ethics principles covered in SCI and Master's colloquium.

e   OSCEs are used at the end of each organ system unit. M2 and M3 students also take an end-of-year OSCE to assess general clinical and communication skills. Students will be required to remediate areas of demonstrated deficiency prior to completing USMLE STEP 2 (CS).

f   Clerkship assessment forms assess knowledge, application, medical care, attitudes, communication skills, practice-based learning, systems-based practice and professionalism.

g   SCI exams cover topics in biostatistics, epidemiology, social determinants of health, health disparities, border health issues, occupational and environmental health and community health, family systems, and cultural competence.

h   SARP is a required mentored research experience. Students are assessed on the scientific merit of the project, analytic skills, communication skills, and integrity. Assessment occurs three times: the proposal stage, a written report, and at a poster presentation.

i   Community-based clinic sessions in Society, Community, and the Individual require the student to document specific skills for each session, to discuss the systemic issues related to providing health care for a specific condition, and to self-identify areas for improvement. These are reviewed and commented on by the course director, primarily for formative purposes.

j   Preceptors observe students during the community-clinic sessions in Society, Community, and the Individual. Assessments include professionalism, respectful communication, clinical skills, and the ability to communicate case information.

k   Masters' Colloquium is primarily an oral discussion format. Assessment is based on critical appraisal papers. Assessment categories cover self-directed learning skills, appraisal of the literature, and analytic skills.

l   Patients assess the student as part of both Medical Skills and Clerkship experiences.

m   Small Group assessment forms are used in SPM and SCI. These forms assess student's ability to apply concepts, respectful communication, and ability to admit lack of knowledge.

Appendix K
Virginia Tech Carilion School of Medicine

STUDENT COMPETENCIES

STUDENT COMPETENCIES	ASSESSMENT TOOL
Basic and Clinical Science Knowledge	Multiple-Choice Questions (MCQ), Lab and **Case Exam, Facilitator Evaluation (example), LACE Preceptor Survey,** NBME Shelf Exam, USMLE Step 1 and Step 2
Clinical Reasoning and Problem Solving	Case Exam, Facilitator Evaluation, Preceptor Evaluation, Research Committee, USMLE Step 2
Clinical Skills	Clinical Skills Exam, Preceptor Evaluation, Year 3 OSCE, USMLE Step 2
Research Principles and Application	MCQ and Case Exam, Research Committee Evaluation, **Comprehensive Research Assessment**
Interprofessionalism	MCQ, Short Essay Exam, Self-reflection papers, Case Exam, TEAM Exam, peer evaluations
Acquisition and Integration of Knowledge	Facilitator Evaluation, Case Exam, Preceptor Evaluation
Peer-teaching and Communication Skills	Facilitator Evaluation, Preceptor Evaluation, Clinical Skills Exam, Year 3 Objective Structured Clinical Examination (OSCE), peer evaluation
Professionalism	Facilitator Evaluation, Clinical Skills Exam, Year 3 OSCE, "Defining Issues Test" (DIT), peer evaluation